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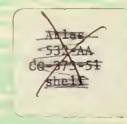
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INVESTIGATION OF THE
WEDDELL SEA COASTAL CURRENT
FEBRUARY-MARCH 1970





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OCEANOGRAPHIC



REPORT No. 51 cg 373-51

INVESTIGATION OF THE WEDDELL SEA COASTAL CURRENT

FEBRUARY-MARCH 1970



Gary L. Hufford James M. Seabrooke



Abstract

A physical and chemical investigation of the Weddell Sea Coastal Current was made during the austral summer of 1970 as part of the International Weddell Sea Oceanographic Expedition. This Coastal Current has been hypothesized to be a major component in the formation of Antarctic Bottom Water. The 1970 data indicated that the Coastal Current existed from the surface to the abyssal depths in the eastern Weddell Sea and that it decreased in temperature and increased in salinity as it flowed south over the continental shelf. This may be due to alteration of the shelf water as it flowed along and under the extensive ice shelves along the east coast or surface cooling. Nutrient concentrations below the surface layer remained relatively constant from station to station on the shelf. From the edge of the shelf to the depth of 2000 meters Warm Deep Water was found to have the highest nutrient concentrations. This warm water is believed to be carried into the Weddell Sea by a branch of the Circumpolar Current. Origin of the abyssal water in the eastern Coastal Current is unknown.

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Investigation of the Weddell Sea Coastal Current February-March 1970

Gary L. Hufford ¹

James M. Seabrooke ²

INTRODUCTION

The Coastal Current in the Weddell Sea has been hypothesized as a major component in the formation of Antarctic Bottom Water (Seabrooke, Hufford, and Elder, 1971), but only a few observations have been made in it. This current has been found to exist from the surface to the bottom in the eastern Weddell Sea exhibiting uniformity in current direction (southerly) (Gordon, 1970). Sverdrup, et al. (1942), suggested that the westward flow of the Coastal Current east of the Weddell Sea is due to an extensive clockwise gyre which occurs in the Southern Ocean.

DATA ACQUISITION

From February 14 to March 21, 1970, an oceanographic investigation (32 stations) of the eastern Weddell Sea Coastal Current by the Coast Guard Oceanographic Unit was conducted aboard the icebreaker USCGC GLA-CIER (WAGB-4) as part of the International Weddell Sea Oceanographic Expedition (fig. 1). Hydrographic data were obtained using Nansen bottles with reversing thermometers, current meters, and a continuous salinity-temperaturedepth recording system (STD) with a Niskin multisampler attached. Sampling was conducted to as close to the sea floor as possible. The resulting water samples were analyzed manually at sea for dissolved oxygen, inorganic phosphate, nitrate, nitrite, and silicate using the techniques described in the manual of Strickland and Parsons (1965). Salinity was determined using an inductive salinometer. The

Direct measurements of currents from the surface to the bottom were made at Halley Bay (fig. 1). The ship was anchored to the fast ice and continuous measurements were taken for two days. The current data are being processed by the University of Bergen, Norway, and the results will not be reported here.

Eight oceanographic stations of opportunity were occupied in the Bransfield Strait region during 6-29 January 1970 to determine if any flow of Antarctic Bottom Water from the Weddell Sea occurred there as suggested by Hollister and Elder (1969). The data indicated water with Antarctic Bottom Water characteristics $(-.4\,^{\circ}\text{C},\,34.66\,^{\circ}\text{C}_{00})$ was not present.

WATER MASS DISTRIBUTION

Analysis of the temperature-salinity relations of the data obtained during IWSOE-70, revealed three water masses present in the Coastal Current: Antarctic Surface Water, Warm Deep Water, and a Bottom Water (fig. 2). The properties of these three water masses (Table 2) closely resemble those observed previously by Hufford and Seabrooke (1970).

Above the eastern continental shelf of the Weddell Sea, the water column is occupied by one water mass, Antarctic Surface Water $(T=-0.8 \text{ to } -1.9^{\circ}\text{C}, \text{ S}=33.50 \text{ to } 34.50\%_{0})$ (fig. 2). This water mass shows an increase in

conductivity values obtained were converted to salinity by use of the International Oceanographic Tables published jointly by UNESCO and the National Institute of Oceanography of Great Britain (1966). A summary of data collected at each station is given in Table 1.

Direct measurements of currents from the

U.S. Coast Guard Oceanographic Unit, Washington, D.C. 20390.
 U.S. Coast Guard Oceanographic Unit. Present Address: U.S. Coast Guard Training Center, Governors Island, New York, N.Y. 10004.

Table 1. IWSOE '70 OCEANOGRAPHIC STATION SUMMARY

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^{*}current meter station at Station No. 9 through 18 (Malley Bay)

salinity and a decrease in temperature as it flows into the Weddell Sea. This modification of properties is shown in a T-S diagram (fig. 3) where an "upstream" station (sta. 31) is compared to a "downstream" station (sta. 5). These changes are probably due to freezing of the shelf water as it flows south along and un-

der the extensive ice shelves of the east coast or surface cooling at the sea-air interface, which may be very rapid during periods of strong gradient winds.

A temperature maximum of -1.5 to -1.6 °C was found between 100 and 125 meters in the Antarctic Surface Water at stations 5, 6, and 7

Table 2.—Properties of water masses in the Weddell Sea Coastal Current during IWSOE-70.

Water mass	Temperature and salinity	PO _{4p} mean (μg-at/l)	Number of samples	NO _{3p} mean (μg-at/l)	Number of samples
Antarctic Surface Water	T = -0.8 to -1.9 °C S = 33.50 to 34.50%	$1.70 \pm .11$	71	22.66 ± 2.13	67
Warm Deep Water	T = 0.0 to 0.6 °C S = 34.65 to 34.70%	1.31±.10	23	14.85 ± 1.97	26
Eastern Weddell Sea Bottom Water	T = -0.2 to -0.3 C $S = 34.65$ to 34.660_{00}	1.32±.13	7	17.24 ± 2.23	7

PO_{4p}, NO_{3p} = Preformed phosphate and nitrate.

(fig. 6). This feature has not been described before and its origin is unknown.

Past investigations have rarely found water temperatures below —1.8 °C in the Antarctic Surface Water east of 35°W (Lusquinos, 1963). However, low temperatures were observed in two different areas east of 35°W during 1970. In the Halley Bay area (stations 9 through 17), temperatures as low as —1.98 °C were observed with salinities ranging between 34.0 and 34.4% (figs. 4 and 5). This cold water was evident from the surface to the bottom suggesting formation at the surface, probably by intense cooling and evaporation imposed on the surface by gradient winds. During the occupation of the stations at Halley Bay, continuous winds of 40 knots were measured.

The area sampled near Halley Bay was in a polynya extending over 600 miles, which is a seasonal feature of the Weddell Sea. In the summer, southwesterly winds predominate in the area (Gordon, 1970). Since the direction of ice drift is approximately 45° to the left in the southern hemisphere, the pack ice would concentrate to the north leaving open the polynya in the eastern portion of the Weddell Sea. The mechanism which prevents the closing of the polynya by freezing is unknown. The heat content of the subsurface shelf water is not sufficient to prevent ice formation if it were brought to the surface by some upward process (convection, diffusion). The probable answer is that the surface water does freeze but the action of wind and currents removes the ice. The southward flowing average surface current in the area of Halley Bay is quite slow (Kvinge, 1969) and probably does not play a major role in removal of ice.

Another possible mechanism preventing the closing of the polynya by freezing is the formation of ice in small crystals kept separate and in suspension in the water by turbulence from the action of the wind. The formation of ice crystals in the surface layers has been studied by Littlepage (1965) and Zubov (1945). They found that the ice crystals were carried by vertical mixing to a depth where they would melt because of lowered freezing point (due to pressure). The heat required for melting the ice would come from the surrounding water, lowering its temperature further, possibly explaining the colder temperatures near the bottom at Halley Bay.

Sea water with temperatures near the freezing point was observed in the southeastern Weddell Sea at stations 5, 6, and 7 (fig. 6). Water temperatures below the freezing point were recorded at 19 subsurface levels (below 250 meters) at the three stations. All three stations are located near the Filchner Ice Shelf in a deep depression on the continental shelf. The greatest depth measured in the depression was 1200 meters with a sill depth of 400 meters (Kvinge, 1969). The underside of the edge of the ice shelf is approximately 250 meters below sea level, increasing to over 500 meters before the ice contacts the sea floor shoreward (Zumberge and Swithinbank, 1965). The salinity of the upper 250 meters at the three stations was less than 34.40%, which is less than the salinity of the deeper cold water. Since no advection of near freezing water at depth in the Coastal Current was observed, it is reasonable to conclude that the very cold water was derived by freezing either at the surface or at the underside of the ice shelf.

From the edge of the continental shelf to a depth of 2000 meters, a relatively warm, saline water mass exists in the Weddell Sea Coastal Current (fig. 2). This water mass, called Warm Deep Water by Deacon (1937), is the major mass in the Coastal Current. We found it characterized by above-zero temperatures (0.0 to 0.6 °C) and salinities of 34.65 to 34.70%. Deacon (1963) stated that this water mass consists of a mixture of Antarctic Circumpolar Water and small amounts of North Atlantic Deep Water. A. Gordon (personal communication) believes that part of the Warm Deep Water is bottom water from the Southeast Pacific Basin.

Origin of the bottom water in the eastern Weddell Sea (east of 35°W, fig. 2) is unknown. The first detailed description of this water mass, called Eastern Weddell Sea Bottom Water, was given by Seabrooke, Hufford, and Elder (1971). They found (during IWSOE 1968, 1969) the water mass properties to be slightly different from Antarctic Bottom Water. Results of the 1970 cruise (Table 2) substantiate this. They also suggested that Eastern Weddell Sea Bottom Water may be composed of deep Circumpolar Water and recirculated Antarctic Bottom Water, the Antarctic Bottom Water being the largest component. Further invesigation is necessary to determine the origin of this water mass.

OXYGEN AND NUTRIENT DISTRIBUTION

Dissolved oxygen was measured at all stations where Nansen casts were made. Concentrations exceeded 7.1 ml/l on the continental shelf, with maximum concentrations of up to 8.9 ml/l occurring in the near-surface layers (fig. 7). The Warm Deep Water had the lowest dissolved oxygen content (4.2 to 4.9 ml/l) in the Weddell Sea, and Eastern Weddell Sea Bottom Water had slightly higher concentrations (5.2 to 5.6 ml/l) (fig. 7). Percent saturation, computed from solubility relationships developed by Green and Carritt (1967), varied from 90-97% in Antarctic Surface Water to 59-60% in the Warm Deep Water and 62-68% in the Eastern Weddell Sea Bottom Water. A possible reason for the higher saturation values in Eastern Weddell Sea Bottom Water is recirculation of some Antarctic Bottom Water back

into the Weddell Sea by way of the Antarctic Coastal Current where it is mixed with deep Circumpolar Water to form Eastern Weddell Sea Bottom Water. Antarctic Bottom Water formed in the Weddell Sea has a high saturation value (about 80%, Hufford and Tennyson, 1970) because of recent contact of one of its components (shelf water) with the sea surface.

According to Clowes (1938), the nutrient concentrations in the Antarctic rarely fall below the winter maximum concentrations of temperate regions. Concentrations of the various nutrients measured in the Weddell Sea support this. Ranges of concentrations found in 1970 were:

inorganic phosphate $0.6-2.5~\mu g$ -at/l. nitrate— Nitrogen $14.0-33.0~\mu g$ -at/l. nitrite— Nitrogen $0.1-0.5~\mu g$ -at/l. silicate— Silicon $32-125~\mu g$ -at/l.

In general the vertical distributions of the nutrients in the Weddell Sea (figs. 8–13) fit the classical description. On the continental shelf, phosphate, nitrate, and silicate concentrations increased with depth to about 100 meters, then remained fairly constant to the bottom (figs. 8–10). Off the shelf, the nutrients increased with depth until a maximum was reached between 800 and 1000 meters (figs. 11–13). Below the maximum, concentrations decreased slightly and then remained constant to the bottom.

To differentiate further the principal water masses involved in the Weddell Sea Coastal Current, preformed phosphate and nitrate concentrations were computed using the equations of Pytkowicz (1968). Oxidative ratios were estimated from the changes in the concentration of oxygen and nutrient ions. Preformed concentrations were computed only from samples below 75 meters to eliminate discrepancies that exist in the surface layer because of exchange of oxygen with the atmosphere and mixing of the surface waters. Mean values and variation about the mean were computed separately for Antarctic Surface Water, Warm Deep Water, and Eastern Weddell Sea Bottom Water

(Table 2). The preformed nutrient concentrations in the Warm Deep Water and Eastern Weddell Sea Bottom Water are almost identical and significantly lower than that of Antarctic Surface Water. Because of the similarity in preformed values, Warm Deep Water and

Eastern Weddell Sea Bottom Water can only be separated by temperature, salinity, and oxygen characteristics. The 1970 preformed nutrient concentrations correspond closely with the 1968 and 1969 values found by Hufford and Seabrooke (1970).

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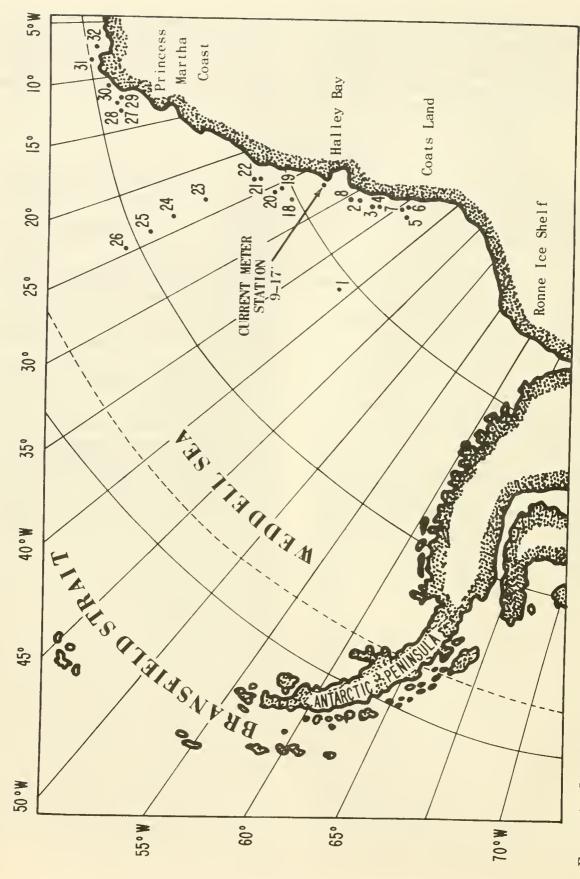


FIGURE 1. Location of stations for the 1970 International Weddell Sea Oceanographic Expedition (IWSOE-70), 14 February-21 March 1970.

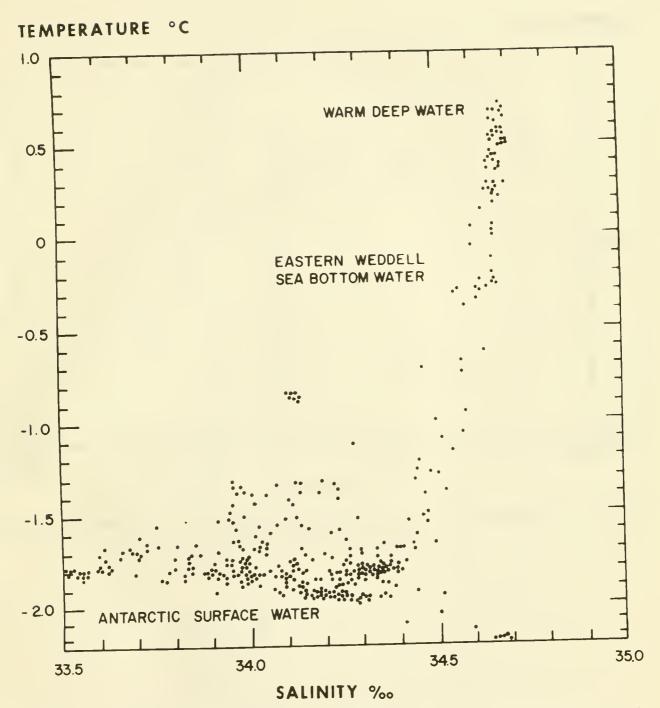


FIGURE 2. Scatter plot of temperature (°C)-salinity (‰) from all the stations taken in the eastern Weddell Sea during IWSOE-70, 14 February-21 March 1970.

TEMPERATURE °C

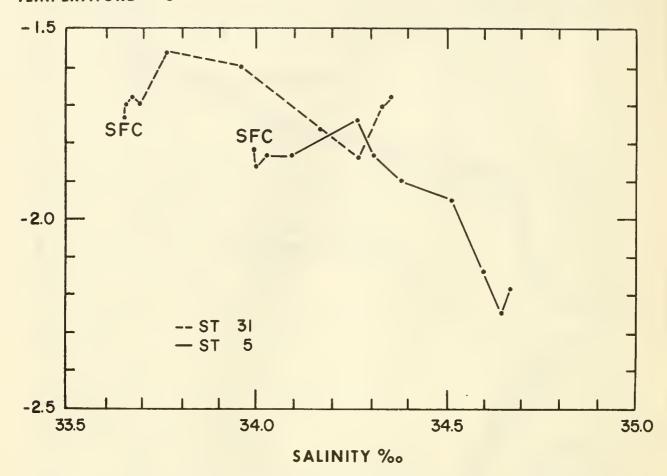


FIGURE 3. Temperature (°C)-salinity (%0) diagram of stations 5 and 31 from IWSOE-70, 14 February-21 March 1970.

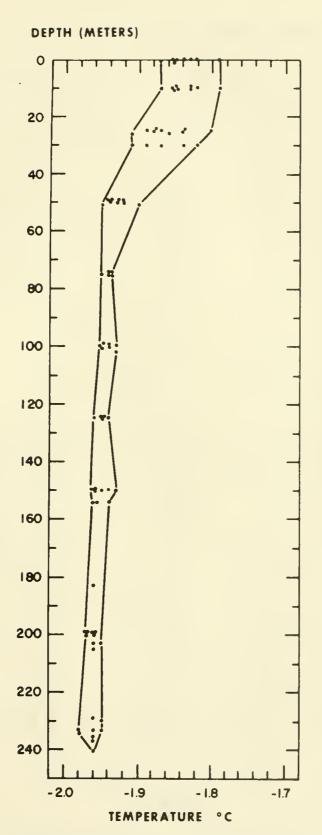


FIGURE 4. Envelope of temperature (°C) versus depth (m) for stations 9 through 17 from IWSOE-70, 14 February-21 March 1970.

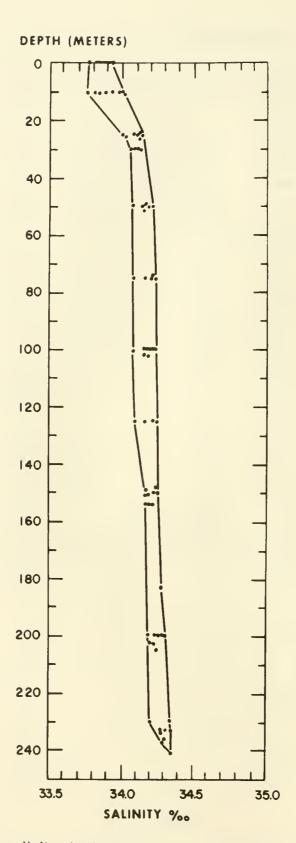


FIGURE 5. Envelope of salinity ($\%_0$) versus depth (m) for stations 9 through 17 from IWSOE-70, 14 February-21 March 1970.

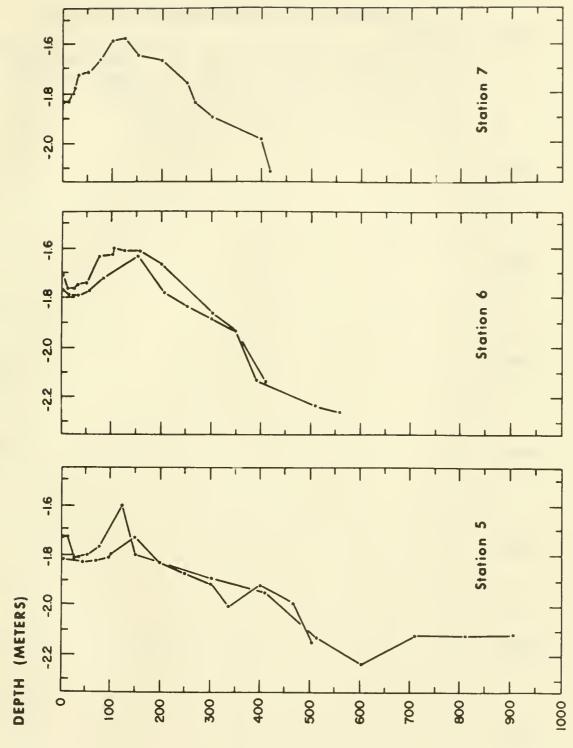


FIGURE 6. Temperature (°C) versus depth (m) for stations 5, 6, and 7 from IWSOE-70, 14 February-21 March 1970. Shallow casts by STD. Deeper casts by Nansen bottles.

DISSOLVED OXYGEN (ml/l)

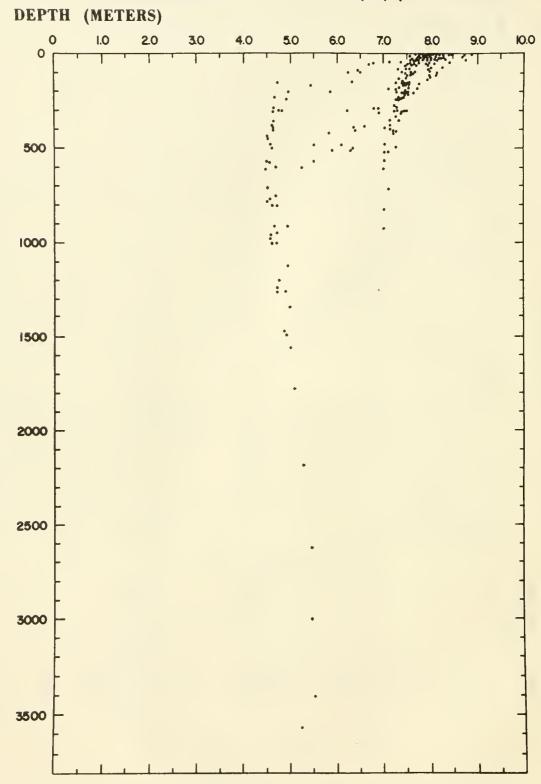


FIGURE 7. Dissolved oxygen (ml/l) versus depth (m) for all stations taken during IWSOE-70, 14 February-21 March 1970.

INORGANIC PHOSPHATE - P (µg-at/L) DEPTH (METERS)

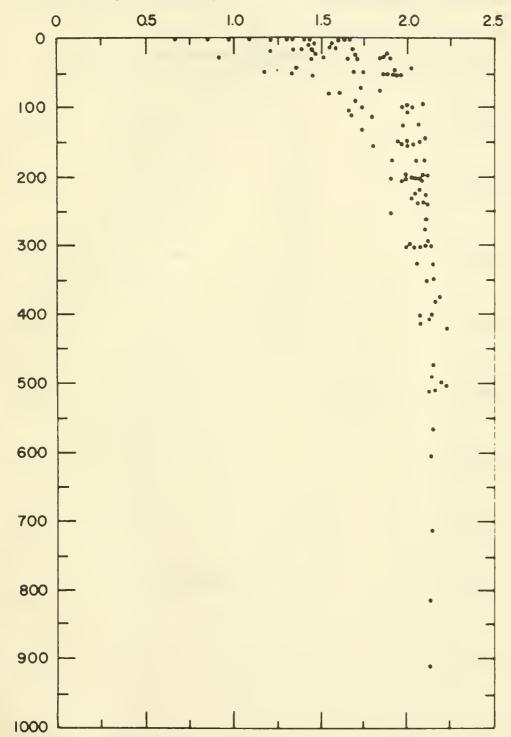


FIGURE 8. Envelope of inorganic phosphate (μg -at/l) versus depth (m) for all shelf stations taken during IWSOE-70, 14 February-21 March 1970.

REACTIVE NITRATE - N (µg-at/L)

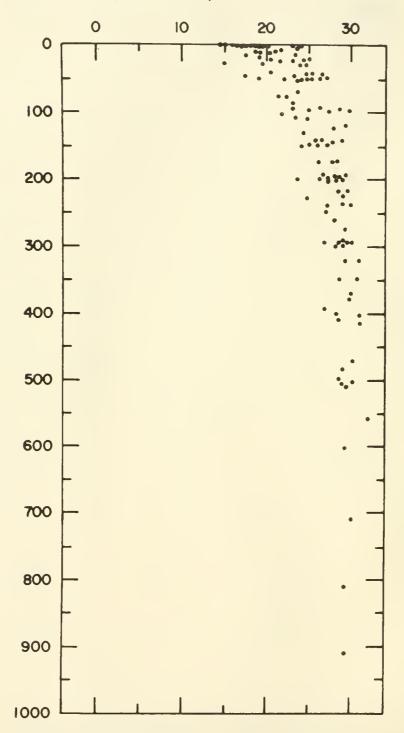


FIGURE 9. Envelope of nitrate (μg -at/l) versus depth (m) for all shelf stations taken during IWSOE-70, 14 February-21 March 1970.

SILICATE - Si (µg-at/L)

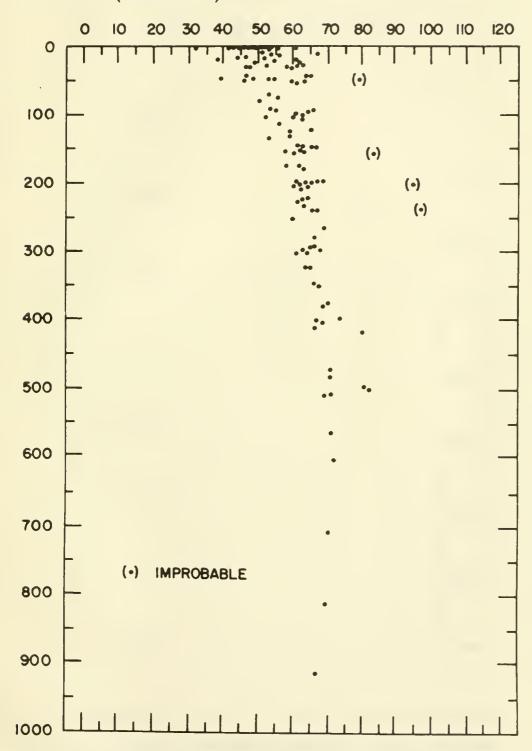


FIGURE 10. Envelope of silicate (μg-at/l) versus depth (m) for all shelf stations taken during IWSOE-70, 14 February-21 March 1970.

INORGANIC PHOSPHATE - P (µg-at/L)

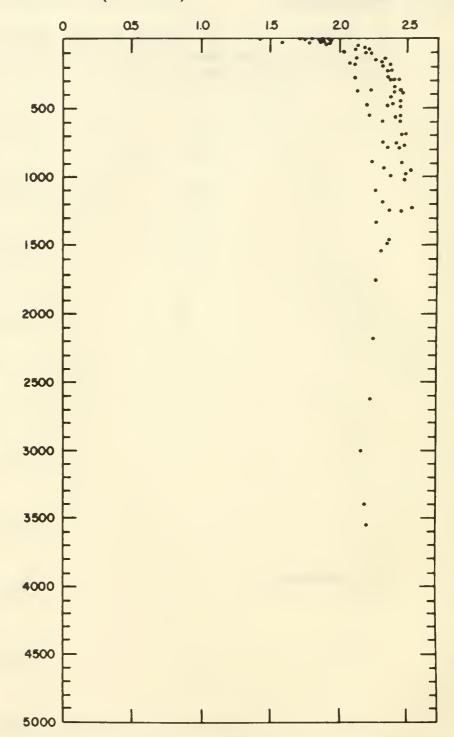


FIGURE 11. Envelope of inorganic phosphate (μg-at/l) versus depth (m) for all deep stations taken during IWSOE-70, 14 February-21 March 1970.

NITRATE - N (µg-at/L)

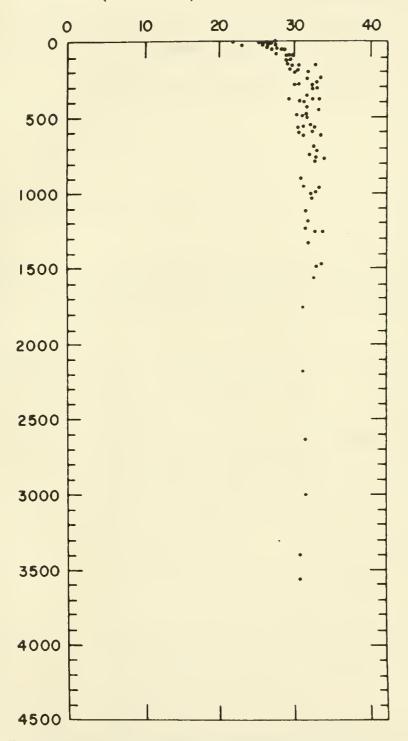


FIGURE 12. Envelope of nitrate (μg -at/l) versus depth (m) for all deep stations taken during IWSOE-70, 14 February-21 March 1970.

SILICATE - Si (µg-at/L)

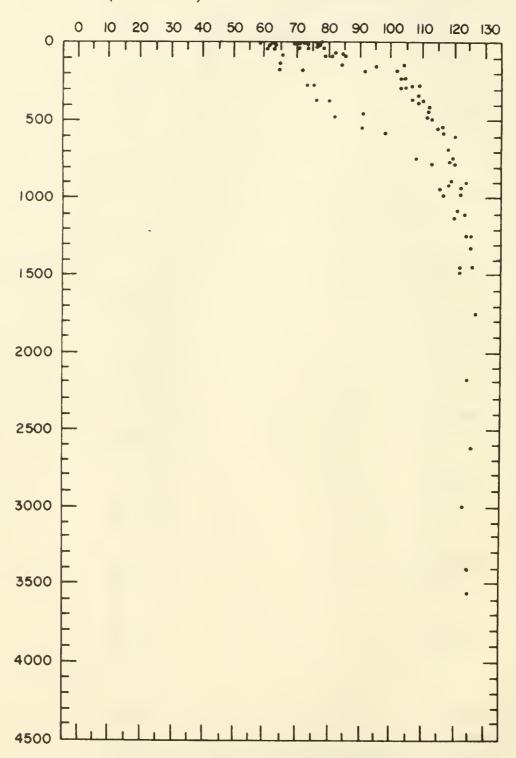


FIGURE 13. Envelope of silicate (μg-at/l) versus depth (m) for all deep stations taken during IWSOE-70, 14 February-21 March 1970.

APPENDIX A

OCEANOGRAPHIC DATA

I. CGC GLACIER, January 1970

Cruises Listed

Table

II. CGC GLACIER, Feb	oruary-March 1970
Codes Utilized	
National Oceanographic Data Stations. (Rev. August 1964)	of the codes utilized in the tabulation of oceanographic station data can be found in a Center publication M-2, Processing Physical and Chemical Data from Oceanographic, supplement issued May 1966.) oceanographic station data listing, entry headings which are not self-explanatory are
Depth to Bottom	Corrected or uncorrected sounding in meters.
Max. Depth of Samples Wave observations	Depth of deepest sample to nearest multiple of one hundred meters.
DIR.	Rounded to nearest multiple of 10 degrees.
HGT	Increments of ½ m. Sum of 5 meters plus increments of ½ m if 50 is added to direction.
PER	If numerals 2 through 9 are entered, period in seconds is twice the numeric entry or 2X (numeric entry) +1. For other entries see WMO Code 3155.
SEA	Sea state according to WMO Code 3700
Weather Code	If preceded by X, weather according to WMO Code 4501. If a two-digit entry, weather according to WMO Code 4677.
Cloud Code	
Type	Cloud type according to WMO Code 0500.
Amount	Cloud amount in eighths. Entry of the numeral 9 indicates cloud amount could not be estimated.
Water	
Color Code	Color according to Forel-Ule scale.
Trans	Transparency in whole meters as determined by Secchi disc.
Wind	
Dir	Rounded to nearest multiple of 10 degrees.
Speed or Force	If preceded by letter S, wind speed in knots; if preceded by letter F, wind force according to Beaufort scale.
Barometer	Barometric pressure given in tens, units, and tenths of millibars.
Air Temp. °C	Air temperature to tenths of a degree centigrade.
Vis. Code	Visibility according to WMO Code 4300.
No. obs. depths	Number of observed levels associated with the station.
Messenger time	Entered in hours and tenths of an hour GMT. For Nansen casts, indicates time of release of messenger applicable to the observational level. For STD casts, indicates the starting time of lowering the sensor.
Card type	OBS designates observed levels. STD indicates the values at this standard level were

interpolated by a modified 3-point LaGrange formula.

Page

22

Depth (m)	Depth to nearest meter. A postscript T indicates depth was obtained therometrically; Z indicates uncorrected "wire out" depth. Postscript Q indicates value was marked doubtful by originator; P indicates value was considered doubtful by NODC. Postscripts P and Q retain this meaning throughout the following entries.
T °C	Temperature to hundredths of a degree centigrade
S %00	Salinity in parts-per-thousand.
SIGMA-T	Entered to hundredths.
Specific-volume	Multiply entry by 10 ⁻⁷ to obtain specific-volume anomaly in cubic centimeters per gram.
ΣΔD Dyn, M × 10 ³	Multiply entry by 10 ⁻³ to obtain anomaly of dynamic depth in dynamic meters referenced to the sea surface.
Sound Velocity	Sound velocity according to Wilson's formula entered to tenths of a meter per second.
O ₂ ml/l	Dissolved oxygen in milliliters per liter entered to hundredths.
PO ₄ -P μg-at/l	Inorganic phosphate in microgram-atoms per liter entered to hundredths.
Total-P µg-at/l	Total phosphous in microgram-atoms per liter entered to hundredths.
NO_2 -N μ g-at/l	Nitrite-nitrogen in microgram-atoms per liter entered to hundedths.
NO_3 -N μ g-at/l	Nitrate-nitrogen in microgram-atoms per liter entered to tenths.
SiO ₄ -Si μg-at/l	Silicate-silicon in microgram-atoms per liter entered to whole units.
pH	Entered to hundredths.

TABLE I.—CGC GLACIER, January 1970.

REFER	RENCE	SHIP				-	M AF	SOEN	STA	TION				ORIG	HATO	R'S		DEPTH	MAX.		WAVE		WEA-					NODC
CTRY	10.	COOE	LATITE		LONGITUD		200	JARE		IGMT		YEA	R	CRUISE	STAT			TO BOTTOM	OF		ERVA TI	IONS	THER	CO				TATIOH
CODE	NO.			1/10	, ,,	/10	10°	1°	MO	OAY	NR.1/10		_	NO.	NUN	ABER		BOTTOM	S'MPL'S	DIR	HGT PE	R SEA	4 0000	TYPE	AMT		N	OWBER
31	8155	GL	6106	5	05539	W	521	15	01	06	209	197	70	0	01		0	0045		27	6 4	-	X4	X	9			000
								WA	TER	\top	WINO	1	ARO	· AIR T	EMP.	2		NO,				•					'	
								COLOR	TRAN	S. DIR	SPEE Of	0 1	ETER	DRY			COOE	OBS.	OBSERV	IAL ATIONS								
								CODE	(m)		FOR	CE ((adm	BULB	91) LB		OEPTHS										
										24	51	4 8	393	006	0	05	3	04										
		MESSENGI	CAST	CA	80					/				SPECIFIC VO	UME	\$	Δο	SOL	JHD		PO ₄	P	TOTAL-P	NO 20	N N	03-N	SI O4-Si	
		TIME NR 1/10	F NO.	TY		H (m	' '	2, 1		s *4.	210	GMA-1	'	ANDMALT-			N. M. 10 ³		CITY	03 ml/l	νg -		ا/اه - وبر			9 - 01/1		
		1710							+		-		\top					+			+-	_			_			
		1	ļ	۱ د	TD 00	00	-0	012	34	26	ا -	754	- 1	00055	5.9	່ດດ	00	144	477		1	ļ		ı	- 1	,		I
		209		08:		00		012		264		754		00033		00			477									
		20	,			10		013		26		754		00055	75	00	05		478									
		209	0	08		10		013		262		754		00022		0.0			478									
		20				20		013	-	26		754		00055	54	00	11		480									
		209	0	08.		25		013		264		754		000		30			481									
		20	,			30		013		26		754		000554	4.5	0.0	16		482									
		200		08		35		013		266		754				, .			483									

REFERENCE	SHIP	LATITU	٠.	LONGI	71105	F # 5	MARS		ATZ	TIOH		YEAR		ORIGIN				EPTH	MAX.	0.0	SERVA			EA-	CLOUG			NOOC	
CODE NO.	COOE	-	1/10	LONGI	1/10	DELFT	10°		MO		NR.1/10	ILEAR	CRUISI		STATIO			MOTT	OF S'MPL'S	DIR		PER SI		TER DOE	TYPE AM			NOITAT	
	1									_			+						3.0.723		+				_				-
31815	51 GL I	6450	85 I	0641	.0 W	1 1	522	44 WA1		11	000 wing	1970		AIR TE		-	-	537	L	32	ווון	4	7	1	7 7	1	1	0002	-1
								COLOR		+	SPEE	BAR	∞- ⊢	ORY	WE.	VIS.		NO.	SPE(OBSERV										
								COOE	(m)	OIR	FORC			IULB	BUL		PDE	EPTHS	OBJEKY	~ 110N3									
										22	504	97	5 0	00	-00	1 7	1	11			1								
	MESSENG	CAST	CAI								1		Secre	C VOLU		₹ △ 0	Ť	sou	NO.		90) ₄ P	TOTAL	_	NO2-N	NO ₂ -N	5104-5		Is
		Or NO.	TY		OEPTH	(m)	Ţ	tc	1 3	./	Sic	T-AM		ALY-XI		X 103	١٠	VELO		02 ml/		- 01/1	101AE		NO2=N	μg - ot/l	yg - ot/		C
	HR 1/10	+	_	-					+-		+		 		-		+				+-			+				+	+H
	I	1	١ .	TD I	000	0	-0	098	32	80	26	39	001	644	۱	0000	, 1	144	.17		1		I	1			I	1	11
	000	,	089		000			98	-	798		39	001	.044	0	0000	,	144											
	000		08		000			111		797		39						144											
			S		001			113	32			46	001	575	1	0016	,	144											
			S.	TD	002	0	-0	125	33	58	27	03	001	036	4	0029	1	144											
	000)	089	5	002		-0	125		735	_	16						144											
			S.		003		-0		33			25	000	824	6	0038	1	144											
	000)	08		004			070		080		42				0000		144											
			S.		005			065	34			42	000	667	1	0053	•	144											
	000)	085		007		-0	28	34	165		50	000	592	2	0069	,	144											
	000	,	089		009		-01			21 336		59	000	272	2	0009	_	144											
	000	,	S		010			002	34			60	000	497	0	0082		145											
			Š.		012			011	34			63		471		0094		145											
	000)	089		013			016	34	07P	27	37P																	
			S.	TD	015	0	0.0	19	34	42	27	65	000	447	8	0106	,	145	18										
	000)	08	5	018	5	0.0	27	34	464	27	68						145	528										
			\$	T D	020	0	0.0	28	34	47		68	000	420	2	0128	1	145											
			S.		025			37	34			70	000	407	3	0148	i	145											
	000)	085		027			043		508		71						145											
			5		030)54	34			72	000	386	3	0168		145											
	000		089		036			74		586		75	000	24.5		0205		145											
	000		\$1		040			083	34			77	000	345	4	0205		145											
	000)	085) 1	044	3	0(880	34	640	21	79						146	01										

TABLE I.—Continued.

REFERENCE CTBY IO. CODE NO	SHIP	LATITU	DE LO	ONGITUOE LEGGN	MARS SOU:	ARE		(TM		YEAR	CRUISE	STATIO NUMBI	N	OEPTH TO BOTTOM	MAX, DEPTH OF S'MPL'	095	WAVE ERVATION:	5000	COOES	}		NOOC STATION NUMBER	
31815	55 GL	6114	5 0	5811 W	521	18	01 1	7 1	82 1	970	0.0	3		0636		16	2 6	X 1	8 2			0003	
						WAT		W	INO	BARO	AIR TE	MP. °C	vis.	NO.	585	CIAL							
						COLOR	TRANS.	OIR.	SPEED	METEI (mbal		WET	CODI	ORS. DEPTHS		ATIONS							
					-	0000		2 2	FORCE	-	_	+		1.0									
					$\overline{}$		Ļ]	03	505	976	-010	-02	1 8	13			,						_
	MESSENGR TIME O HR 1/10	CAST NO.	CARD	OEPTH (m)	Ť	٣	5 .	٠/	SIGM	A-T	SPECIFIC VOL		₹ Δ D 0YN, M x 10 ³		CITY	O ₂ ml/l	PO4P yg - el/i	TOTA L-P µg - 01/1	NO2-N µg - ot/l	NO3~N ug - e1/i	51 O4~		s c c
										- 1		- 1			ĺ								\Box
			STD	0000		066	341		273		000710	3	0000								,		
	182		OBS	0000		066	341		273					14									
	* 0 0		STD	0010		8 6 6	339		272		000834	1	0007										
	182		OBS STD	0010 0020		068	339 340		272		000750		0015	14									
	182		085	0025		049	340		273		000750	1 1	0015	14									
	102		STD	0030		39	340		273		000718	13	0023										
			STO	0050		27	340		273		000707		0037	14									
	182		OBS	0051		026	340		273		000101		005,	14									
			STD	0075		13	341		274		000674	3	0054										
	182		085	0076	00	12	341	27	274	2				14	499								
			STD	0100	-00	007	342		275		000579	7	0070	14	496								
	182		OBS	0102	-00		342		275					14									
			STD	0125	-00		342		275		000553		0084										
			STD	0150	-00		342		275		000529	8	0097										
	182		OBS	0152	-00		342		275					14									
			STD	0200	-00		343		276		000470	12	0122										
	182		OBS	0203	-00		343		276		000/25		.1, =	14									
	100		STD	0250	-00		344		276		000425	1 1	0145	14									
	182		085	0254	-00		344		276			_	01.5		520								
	182		STD 085	0300 0305	-00		344		277 277		000391	י כ	0165	14									
	102		STD	0400	-00		345		277		000338	7	0202										
	182		OBS	0406	-00		345		277		000000	, ,	0202	14									
	102		STD	0500	-00		345		277		000316	3	0235										
	182		OBS	0508	-00		345		277					14									
			STD	0600	-00		345		277		000301	7	0265										
	182		OBS	T0618	-01	102	345	23	277	9				14									

																					-					1
REFERENCE	SHIP	LATITU	Of	LONGITUDE	CTR	MAR!		STATION	TIME	YEAR	_	ORIGIN			DEPTH	UEP	TH .		WAVE ERVATIO		WEA-	CLOUE			NOOC	
CODE NO.	CODE	+	1/10	1/1	DRIFT	10°			HR,1/10		CRUISI NO.		OITAT		вотто	M S'MP		DIR.	HGT PE	E SEA	- CODE	TYPE AN			UMSER	1
												00	,		0546	,			2 2	1	X 2	6 8	1		0004	
31815	51 GL I	6236	s I	05935 V	/ I I	521	29 II	01 18	167 WIND	1970		AIR TEA							2 (2	t	1 ^2	010	1	- 1	0004	•
							COLOR		SPE		10°	ORY	WET	V15.	NC OBS.	Losse	PECIAL RVATIO									
							COOE	(m) O	IR, DI			BULB	BUL		DEPTH	2 0836		5,43								
								2	1 51	8 94	9 0	10	-00	4 7	12											
	MESSENG			_		T			1		1			₹ △ □	1	011110	T		100	. T				EIO E		5
	TIME	CAST NO.	CAR		(m)	1	℃	s */.	. SI	GMA-T		C VOLU		OYN. M		LOCITY	02	m1/1	PO4-		101A L-P	NO2-N ug - ot/l	NO3~N	51 O4-5i yg - at/l	pН	c
	HR 1/10)	_			-		-			-		+	x 10 ³	+-		+		-	\rightarrow			-	-		
								1			1		_		١.						1			l		
			ST				037	3409	_	737	000	716	7	0000		4497										
	16		OBS				037	3408		737						4497 4499										
	16	7	085				038	3409		737	000	710	^	0007	_	4499 4499										
			ST				038	3409		737		713		0007 0014		4500										
		_	ST				035	3409 3408		737 737	000	714	0	0014		4500										
	16	/	0B5				035 035	3407		736	000	723	7	0021		4501										
		-	089				034	3407		736	000	1123	'	0021		4503										
	16	ſ	51	-			030	3407		737	000	712	7	0035		4502										
	16	7	089				011	3413		743	000					4497										
	10	,	ST				003	3415		744	000	647	1	0052		4495										
	16	7	088				015	3419		748			-			4490										
	10		ST				022	3422		751	000	585	6	0068	14	4489										
			51				038	3428	2	756	000	531	4	0082	14	4486										
	16	7	089	01:	38	-0	043	3430	0 2	758						4486										
			51	D 019	50	-0	043	3431	2	759	000	506	4	0095		4489										
	16	7	089				042	3433		761						4494										
			51				039	3435		762	000	477	6	0119		4499										
	16	7	083				030	3437		764						4508										
			51				014	3442		767	000	431	6	0142		4520										
	16	7	083				003	3445		769		201		01/0	_	4529										
			51			_	007	3449		771	000	391	4	0163		4539 4552										
	16	7	083				014	3453		775	000	220	2	0199		4552 4558										
		-	Si		-		010	3456		777 778	000	338	2	0199		4550 4560										
	16	1	083	5 TO4:	38	U	000	3457	2 2	116					1	- 700										

TABLE I.—Continued.

REFERENCE CODE LATITUDE LDNGITUDE CODE NO. NUMBER NO. NUMBER NO. NUMBER NO. NUMBER NO. NO. NUMBER NO. NO. NUMBER NO.	NDDC STATION NUMBER
318155 GL 601255 04615 W 520 06 01 27 212 1970 005 2727 00 0 X X4 X 9	NUMBER
	0005
WATER WIND BARD- AIR TEMP, TO VIS. ND. SPECIAL ORDER THANKS OF SPECIAL DRY WELL COOK DBS. DATERNATIONS	
COLOR TRANS. OIR. SPEED OR METER DRY WET COOR DES. DESERVATIONS	
32 S05 921 017 015 1 16	
	3-N SID4-Si pH S
HR 1/10 NO. TYPE DEFIN OUT 300 ANOMALY-1107 X 103 VELDCITY 2 m/1 yg - 01/1 y	- at/1 µg - at/1 C
770 2000 2004 2004 2004 2004 2004 2004 2	
STD 0000 -0034 3334 2681 0012500 0000 14454 212 085 0000 -0034 33344 2681 14454	
STD 0010 -0034 3335 2682 0012415 0012 14456	
212 085 0010 -0034 33354 2682 14456	
STD 0020 -0073 3339 2686 0012012 0024 14440	
212	
STD 0050 -0118 3382 2722 0008550 0055 14430	
212 085 0052 -0120 33843 2724 14430	
STO 0075 -0148 3409 2745 0006384 0074 14424	
212	
212 085 0103 -0111 34308 2762 14449	
STD 0125 -0089 3437 2766 0004404 0100 14464	
STD 0150 -0065 3443 2770 0004036 0110 14480	
STD 0200 -0027 3452 2775 0003514 0129 14507 212 085 0203 -0025 34524 2776 14508	
212 085 0203 -0025 34524 2776 14508 STO 0250 0003 3456 2777 0003348 0146 14530	
STD 0300 0019 3459 2778 0003233 0163 14546	
212 085 0303 0020 34590 2779 14547	
STO 0400 0012 3460 2780 0003062 0194 14559 212 0BS 0400 0012 34605 2780 14559	
212	
510 0500 0007 3460 2780 0003079 0225 14574	
212 085 T0591 0011 34613 2781 14591	
STO 0600 0011 3461 2781 0002982 0255 14592	
STD 0700 0009 3462 2782 0002895 0285 14608 212 085 0793 0007 34629 2782 14623	
STD 0800 0007 3463 2782 0002834 0313 14624	
STD 0900 0006 3463 2782 0002819 0342 14 640	
212 085 0993 0004 34630 2783 14655	
STD 1000 0004 3463 2783 0002790 0370 14656 STD 1100 -0000 3463 2783 0002728 0397 14671	
212 085 1193 -0004 34635 2783 14685	
STO 1200 -0004 3463 2783 0002684 0424 1468 6	
STD 1300 -0008 3463 2784 0002656 0451 14701	
STD 1400 -0011 3463 2784 0002637 0477 14717 212 085 11492 -0013 34631 2784 14732	
212	
STD 1750 -0018 3463 2783 0002593 0569 14773	
STD 2000 -0019 3462 2783 0002604 0634 1481 5	
212 085 72008 -0019 34619 2783 14817	

TABLE I.—Continued.

REFERENCE	SNIP	LATITU	O.F.	LONGITUOE	Design	MARSO	EN E	STATION T		YEAR		ATOR'S		OEPTH TO	MAX. OEPTH	OB	WAVE SERVATION	S TH	A- C	LOUG			NOOC
CODE NO.	CODE	•	1/10	1/	10 2			MO OAY H			CRUISE NO.	STATIO! NUMBE		BOTTOM	OF S'MPL"	DIR	HGT PER		20	PEAMT			TATION
318155	GI (5012	5 ()4615		520 (26 (01 28 0	050 1	970	00	16						X		3			0006
310122	J		0	,			WAT		VINO	BAR	A 10 T	MP. °C	vis.	NO.		CIAL	' ' '	, ~	_ , 、			'	0000
						C	OLOR	TRANS. DIR.	SPEED	METI	ER DRY	WET	COD	One.	OBSERV								
									FORCE	(mo	-	0010	-	-									
Г						1	T	SD 36	504	<u> </u>	015		7	27	<u> </u>			T	_				
^	TIME OF	CAST NO.	CARO	DEPTI	4 (m)	Т 3	С	s °/	SIGM	A -T	SPECIFIC VOL	JME 10P	YN. M	SOI	DCITY	0 2 ml/l	PO4-P	TOTAL	P NO	2-N	NO3-N	\$104-5	
<u> </u>	R 1/10					-			-				x 10 ³	VEC.	JCIII		μg = σt/l	µg = et	/I hå	- at/l	µ@ - a1/1 ·	/fp = gu	
1	- 1					1		1						1									1
	050		OBS			-002		3342 33420	268 268		001195	8 (000		460 460								
	050		STE	00		-002		3342	268		001195	5 (012		462								
			085	30		-002		33420	268		001173		012		462								
			STO			-004		3344	268		001168	8 0	023		454								
	007		OBS	00		-006		33470	269						444								
			STO			-010		3351	269		001097	4 (035		430								
			OBS ST	00		-010		33508 3388	269 272		000806	3 0	054		430 431								
			OBS	00		-011		33880	272		000000) (0)4		431								
			STO			-015		3420	275		000547	9 0	071		420								
			OBS	00		-015		34200	275						420								
			OBS	00		-016		34220	275		000200				420								
			STE OBS	01		-014		3441 34406	277 277		000393	8 (082		435 435								
			STE			-012		3444	277		000372	5 0	092		448								
			OBS	01		-012		34440	277		00007		- / -		448								
			STO			-008	30	3454	277		000310	3 0	101		475								
			OBS	01		-008		34543	277						475								
			STO			-004		3458	278		000295	5 0	116		499								
			OBS	020		-004		34580 3465	278 278		000274	6 0	130		499 536								
			OBS	02		001		34650	278		000214	0 0	- > 0		536								
			STO			001		3467	278		000261	0 0	143		545								
			085	030		001		34668	278						545								
			OBS	03:		002		34690	278						555								
			OBS OBS	039		000		34650 34710	278 278						549 567								
			STE			003		3471	278		000240	6 0	168		571								
			OBS	041		003		34710	278		0002.0		-00		571								
			085	04		002		34710	278						574								
			OBS	04		000		34710	278						570								
			STE			-000		3469	278		000229	9 0	192		571								
			OBS STC	050		-000		34695 3472	278 278		000225	0 0	215		571 598								
			OBS	060		002		34720	278		000223	0 0	-15		598								
			STO			001		3472	278		000218	7 0	237		510								
			085	07		001		34720	278						510								
			STE			001		3473	279		000210	3 0	258		527								
			OBS	080		001		34730 3472	279 279		000211	7 0	2 79		527 540								
			OBS	090		000		34720	279		000211	, 0	- 17	_	540								
			STE			-000		3480	279		000145	0 0	297		556								
			085	100	0.0	-000		34805	279					146	556								
			STD			-000		3480	279		000140	2 0	311		570								
			OBS	110		-000		34805 3480	279 279		000135	4 0	2 75		570 585								
			085	120		-001		34805	279		000135	• 0	325		585 585								
			303	121		-001	-	3.003	217	~				7 40	,,,								

TABLE I.—Continued.

REFERENCE	SHIP	LATITUE	۱ ,	LONGITUDE	# MAR	SOEN	STATIO	MIT NO		AR		NATO	R'S	DEPTH	MAX.		WAVE	WEA				NODC	
CODE NO.	CODE		1/10	1/10	10°	T 11		AY (HR.)		^^	CRUISE ND.	STATI		BOTTOA	0.5	1	SERVATIONS		CDOES			TATION	
0.000						1											HGT PER 3	-	TTPL AM	1			
318155	ol GE I	5627	5 10	4507 W	484	65 WA	01 2	8 17 WIN	D T		A ID T) 7 EMP. '		0380	-	01	1 2	X7	0 3		i i	0007	
						COLOR			PEED	BARO)• <u> </u>	w	VIS.	NO. OBS.	SPE	CIAL							
						CDDE	[m]		ORCE	(mbs)) BULB	80		DEPTHS	OBSERV	A HUN3							
						DT	SD	36 S	04	915	018	0	17 7	14									
	MESSENGR	CAST	CARD	D		*c	Ι	, T		\Box	SPECIFIC VOL	UME	ΣΔD	50	UND		PO4-P	TOTAL-F	NO. N	NO N	510 5		1
	HR 1/10	P ND.	TYPE	DEPTH (m)	'	_	2 .	···	SIG MA-	-ī	ANOMALY-		DYN, M x 10 ³		OCITY	02 ml/	yg - e1/1	νg - α1/1	NO2-N ug - at/1	NO3-N vg - at/l	SI O4~Si \Ib + B4		Ĉ.
														+			+						+H
	1	1 1	STO	0000	-0	007	334	2 '	2686	1	001203	30	0000	14	468		l	I	I		ı	1) 1
	175		OBS	0000		007	334		2686		00120.		0000		468								
			STD		-0	007	334	2	2686		001202	27	0012		469								
			085	0010		007	334	_	2686						469								
			STD			069	335		2697		001095	4	0023		444								
	005		OBS STD	0025		099	336		2706		000011	,	0022		432								
			085	0030		129 129	337		2716 2716		000911	. 1	0033		421 421								
			STD			149	341		2748		000613	36	0048		420								
			OBS	0050		149	341		2748		00001.		0040		420								
			STD	0075	-0	164	3421	3	2761		000484	7	0062		419								
			OBS	0075	-0	164	3421		2761					14	419								
			OBS	0081		172	3429		2762					14	416								
			STD	0100		166	3438		2769		000406	6	0073		424								
			085 STD	0100 0125		166	3438		2769			_			424								
			085	0125		144	3445		2 7 74		000358	2	0083		439								
			STD	0150		099	3455		2781		000296	. 0	0091		439 466								
			085	0150		099	3455		2781		000290	7	0091		466								
			STD	0200		056	3462		2785		000260	8	0105		495								
			OBS	0200	-00	056	3462		2785						495								
			STD	0250		043	3464		2786		000250	7	0118		510								
			OBS	0250		043	3464		2786						510								
			STD	0300		039	3465		2786		000244	8	0130		520								
			08S 08S	0300		339	3465		2786						520								
			005	0369	-00	0 3 3	3466		2787					14	534								

ID. NO.	SHIP	LATITE	1/10 10E	LON	GITUDE	DRIFT	MARS SOU			TION T IGMT)		YEAR	CRUISE ND.		TOR'S ATION UMBER		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'	D8	WAVI SERVAT	2002	WEA- THER CODE	CODE	S		NDDC STATION NUMBER	
155	GI	6030) S	044	433 W		520	04	01	29]	80 1	970		008			0600		0.5	2 4		Х4	0 3			0008	
100	0 _ 1	0000	, ,	0 4	* J J W I		1	WA			/IND	BARG	/	IR TEM			NO.] '	,		, , ,	,	,		
								COLDR	TRANS	DIR.	SPEED	METE	R C	DRY	WET	CODE	OBS. DEPTNS		CIAL VATIONS								
									 	ļ.,	FORCE	(mbs	_	-		\vdash				-							
			,					DT	SD	11	513	81	8 0	09	009	3	16	<u> </u>									_
- 1	MESSENGI TIME HR 1/10	T ND.	CAI		DEPTH (m)	Т	℃	S	٠/	SIGN	T-AP	SPECIFIC	VOLUA	, DY	△ ¤. N. M. 10 ³		DCITY	02 ml/			OTA L-P ug - 01/1	NO2-N ug - at/1	NO3-N µg - at/l	2-40-12 Vio - gq		5
			1																						I	-	
				TD	0000)	-00	039	33		268		001	1894	0.0	000		453									Ľ,
	18	0	08		0000			039		420	268							453									
				TD	0010			039	33		268		001	1891	00	11	-	455									
			08		0010			039		420	268		001	110	, 00	172		455 435									
	00	E	08	T D	0020			087 103	33	49 620	269		001	1197	, 00	23	_	430 430									
	00	>		S TD	0030			114	33		272		000	8552	2 00	33		429									
			08		0030			114		820	272		000	0,0,0		,,,		429									
				T D	0050			156	34	-	274		000	6414	. 00	48		416									
			08		0050			156		080	274		000					416									
			0В	-	0069		-0			320	276						14	419									
			5	TD	0075	5	-0	156	34	34	276	66	000	4371	00	61	14	424									
			08	S	0075	5	-0	156	34	345	276	66					14	424									
				TD	0100			148	34	-	277		000	3503	3 00	71		433									
			08		0100			148		460	277							433									
				ΤD	0125			122	34		277		000	3563	3 00	980		450									
			OB:	-	0125			122		462	277						-	450									
				ΤD	0150			096	34		277		000	3177	7 00	88		467									
			OB.	S TD	0150			096 054		524 61	277		000	2654		03		467 496									
			08		0200			054		615	278		000	2004	. 0.	.03		496									
				TD.	0250			037		66	278		000	2386	. n	116		513									
			OB		0250			037		660	278		000	2 3 0 0	, .	10		513									
				TD	0300			026		67	278		000	2360	0	127		526									
			ОВ		0300			026		670	278						14	526									
			S	TΟ	0400	3	-0	023	34	69	278	39	000	221	7 0	50		544									
			08	S	0400			023	34	690	278							544									
				TD	0500)		021		69	278		000	2173	3 0	172		562									
			OB		0500			021		695	278							562									
			08	S	0595	5	-0	020	34	710	279	90					14	579									

TABLE II.—CGC GLACIER, February-March 1970.

STD OOS OOS	OOC NION MBER
318154 GL 74214S 038182W 555 48 02 19 055 1970 001 0512 000	001
WATER WIND BARO- AIR TEMP. \(\text{VIS.} \) OR. OR. OSS	
WATER WIND BARD COLOR MAINS OR SPEED METER SULU WELL COLOR OBS. SPECIAL COLOR METER OBS WELL COLOR OBS. SPECIAL COLOR OBS. SPECIAL COLOR OBS. SPECIAL OBSERVATIONS MESSINCE CAST CARD TYPE DEPTH (m) I °C S °/. SIGMA-I SIGMA-I SPICIFIC VOLUME ANOMALY-X10? X 103 SOUND VELOCITY O2 ml/I PO4-P IOTAL-P NO2-N NO3-N SIGMA-SIGN NO3-N NO3-	·
COORD S.M. CORP S.M. COORD S.M. COORD	рН (
DT SD 14 SO8 861 +022 +024 6 15	pH (
MESSING CAST CARD TYPE DEPTH (m) T 'C S '/. SIGMA-T SPICIFIC VOLUME \$\frac{\pi}{\pi\pi\frac{\pa\frac{\pa\frac{\pi\frac{\pi\frac{\pi\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pi\frac{\pi\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\pa\frac{\p	pH (
Time of No. Time DEPTH (m) Time S '%. SIGMA-T SIGMA-T STATE	pH (
STO 0000 -0176 3397 2736 0007239 0000 14397 055 OBS 0000 -0176 3397 2736 0007225 0007 14397 OBS 0010 -0179 3397 2736 0007225 0007 14397 08S 0010 -0179 3397 2736	Pr
055 OBS 0000 -0176 3397 2736 14397 STD 0010 -0179 3397 2736 0007225 0007 14397 OBS 0010 -0179 3397 2736 14397	
055 OBS 0000 -0176 3397 2736 14397 STD 0010 -0179 3397 2736 0007225 0007 14397 OBS 0010 -0179 3397 2736 14397	
STD 0010 -0179 3397 2736 0007225 0007 14397 OBS 0010 -0179 3397 2736 14397	
OBS 0010 -0179 3397 2736 14397	
• • • • • • • • • • • • • • • • • • • •	
STO 0020 -0179 3403 2741 0006758 0014 14399 005	
STD 0030 -0178 3412 2748 0006062 0021 14403	
OBS 0030 -0178 3412 2748 14403	
STD 0050 -0181 3430 2763 0004661 0031 14407	
OBS 0050 -0181 3430 2763 14407	
STD 0075 -0182 3434 2766 0004336 0043 1 4411	
OBS 0075 -0182 3434 2766 14411	
STD 0100 -0182 3436 2768 0004167 0053 14416	
OBS 0100 -0182 3436 2768 14416	
STO 0125 -0180 3437 2769 0004080 0064 1 4421	
OBS 0125 -0180 3437 2769 14421 STO 0150 -0179 3439 2770 0003915 0074 14426	
OBS 0150 -0179 3439 2770 14426 STD 0200 -0174 3441 2772 0003747 0093 14437	
OBS 0200 -0174 3441 2772 14437	
STD 0250 -0162 3444 2774 0003528 0111 14451	
OBS 0250 -0162 3444 2774 14451	
STD 0300 -0152 3446 2775 0003385 0128 14465	
OBS 0300 -0152 3446 2775 14465	
OBS 0371 -0139 3452 2780 14483	
STO 0400 -0096 3458 2783 0002665 0158 1 4509	
OBS 0400 -0096 3458 2783 14509	
STD 0500 -0063 3463 2786 0002426 0184 14542	
OBS 0500 -0063 3463 2786 14542	

REFERENCE SHIP CODE LATITUE	DE 101	NOUTUDE SULLD	MARSGEN SQUARE	STATION THE	YEAR	ORIGINATO	ION	DEPTH GEPT TO OF BOTTOM S'MP	OBSI	WAVE ERVATIONS HGT PER SEA	WEA- THER CODE	CLOUD CODES	J	STA	ODC ATION IMBER
318154 GL 74214	45 03	8182W	555 48	2 19 0	70 1970	001	. (0512			X4	6 8		0	002
			WAT		INO BAR	AIR TEMP.	°C	NO.	PECIAL						
			COLOR	TRANS. DIR.	SPEED MET	ER DRY V	VIS.		RVATIONS						
					508 86		24 6	10							
		1		114	300 00	1 6022 10		10			1				
MESSENGR CAST TIME OF NO. HR 1/10	C ARD TYPE	DEPTH (m)	1 %	s */4.	SIGMA-T	SPECIFIC VOLUME	₹ △ 0 0yn, м. x 10 ³	VELOCITY	O2 ml/i		1Ο TA L — P μg - α1/1	NO2-N ug - ol/l	NO ₃ -N μg - α1/I	51 O4-5i 94 - 61/1	pH C
•	STD	0000	-0182	3390	2731	0007748	0000	14393	844						
070	OBS	0000	-0182	33902	2731			14393	844	127		800	190	050	
	SID	0010	-0181	3387	2728	0008012	8000	14394	867	121		000	189	050	
070	OBS	0010	-0181	33867	2728	0007671	0016	14394	867 845	131		800	109	050	
0.70	STD	0020	-0182	3391 33939	2731 2734	0007673	0016	14390	833	142		007	210	054	
070	OBS SID	0025	-0182 -0182	3400	2739	0006975	0023	14399	817	172		001	210	034	
	STD	0050	-0180	3421	2756	0005354	0035	14406	768						
070	OBS	0051	-0180	34216	2756	000		14407	766	189		800	268	062	
3,0	STD	0075	-0181	3427	2761	0004874	0048	14411	763						
	STD	0100	-0183	3431	2764	0004548	0060	14415	760						
070	OBS	0102	-0183	34316	2764			14415	760	202		005	285	065	
	STD	0125	-0184	3433	2766	0004378	0071	14419	752						
	SID	0150	-0184	3434	2766	0004284	0082	14423	743	207		003	295	067	
070	OBS	0152	-0184	34342	2767	000/11/	0103	14423	742 730	207		003	295	067	
070	STD	0200	-0179 -0179	3436 34362	2768 2768	0004114	0103	14434	130	209		000	294	069	
070	OBS STD	0203	-0179	3438	2769	0003941	0123	14444	714	203		000	- / 1	00,	
	STD	0300	-0163	3441	2772	0003727	0142	14459	694						
070	OBS	T0308	-0160	34414	2772	00007727	0-42	14462	690	211		000	304	072	
010	STD	0400	-0105	3450	2777	0003231	0177	14504	642						
0.70	OBS	T0403	-0104	34504	2777			14505	640	216		000	303	084	
	STD	0500	-0111	3459	2784	0002483	0206	14519	594						
070	OBS	T0508	-0114	34592	2785			14519	590	217		000	310	094	

TABLE II.—Continued.

REFERENCE	SHIP	LATITUI	ns l	LONGITUDE		MARS		STATI	ON T	3 14.1	YEAI	.		RIGINA	TOR'S		DEPTH	MAX.		WAV		WE		LOUD			NODC	
CODE NO.	CODE		1/10	1/10		10*				HR_1/10	IEA	100	RUISE NO.		ATION		TO 801108	0.5	1 00	SERVA		COL	7 E	CODES			TATION	
216164	C.	7/25			++						107	\rightarrow				-			S DIR.	HGT	PER SE	^	TYP	PE AMI				
318154	I GL I	7635	65	031450W	2	55	61 WAT		_	035 WIND	197	0		002		\downarrow	0392	<u> </u>				X	2 0	0 3			0003	
						-	COLOR			SPEE		ARO- ETER	OR	RTEM	W ET	VIS.	NO. 085.		CIAL									
							CODE	TRANS.	OIR.	FORC	1 4	nbal	BUI		RULB	CODE	DEPTH	S OBSERV	/ATIONS									
							DT	SD	03	516	9	03	-03	6 -	044	7	15	1		1								
	MESSENGR									1		-			7 -	Δο	4	1		Щ.			1					П
	TIME	CAST NO.	CARC		lm 1	T	°C	S	٠/	SIG	MA-T		PECIFIC !		, D,	IN. M		LOCITY	02 ml/		4-P - 01/I	TOTAL-		2-N	NO ₃ -N	SI 04-SI		Š
	HR 1/10			_						+		+				K 10 ³				10	- 0(/)	yg = 01,	ng.	- 01/1	µg - a1/1	µg + a1/1		c
	1				_	0.	0 /	220	^			Ι,		0 / 7			١.,				-			- 1				П
	035		5T 085	000		-01		339			38	(0007	06/	01	000		393										
	000		51			-01 -01		339			38	,	0007	0/0	0.1	007		393										
			0BS	001		-01		339			38	(1000	000	01	301		395										
			ST			-01 -01		339			38	_	0007	053	0.0	014		396										
	005		OBS	002		-01		339			38		,001	0,5,5	01	,,,		397										
			ST			-01		339			38	(0007	047	0.0	021		398										
			OBS	003		-01		339	9		38							398										
			OBS	003		-01		339	9	27	38							398										
			085	003		-01	76	342	5	27	59						14	407										
			STI			-01		342		27		C	0004	819	00	33	-	408										
			OBS	005		-01		342		27								408										
			ST			-01	-	342		27		C	0004	717	0 ()45		410										
			OBS	007		-01		342			62							410										
			STI			-01		343		27		(0004	622	0 (157		414										
			OBS	0100 012		-01 -01		343		27		_	004	404	0.0	068		414										
			085	012		-01 -01		343		27		U	7004	000	00	00		418										
			STI			-01		343		27		0	004	514	0.0	080		423										
			OBS	0150		-01		343	_	27				717				423										
			ST			-01		343		27		0	004	406	0 1	102		431										
			085	0200		-01		343		27								431										
			STI	0250) .	-01	83	343	3	27	66	0	004	302	01	24	14	440										
			OBS	0250		-01	83	343	3	27	66						14	440										
			STI			-01		343		27		0	1004	125	01	45	14	449										
			OBS	0300		-01		343		27								449										
			OBS	0390) .	-01	81	343	9	27	70						14	465										

REFE	RENCE					# MAR	SDEN	STATION	TIME		1	DRIGIN	ATOR	' 5	Τ.	DEPTH	MAX	.]	W A	A V E	т.	WEA-	CLOUD	т			7
CTRY	ID.	CODE	LATITU	- 1	LONGITUDE	SQU SQU	ARE	(GM	T)	YEAR	CRUISE	9	STATIO	N	7	TO	DEPTH		BSERV	ATION	s j	THER	CODES		\$	ODC TATION UMBER	
-		_		1/10	.,,,,	- 10			HR.1/10		NO.		NUMB	ER	+-		S"MPL	S OIR.	HG	TPER	SEA.	_	TYPE AM	1			-
131	8154	GL I	7650	45	032300w	555	62 WA1		075 WING	1970		00		, ,	O	310			۱.		- 1	X 2	0 3			0004	1
							COLGR	1	SPEEL	BAR	0-	ORY	WE	VI		NO. 085.		CIAL									
							CODE	ITRANS. DII	FORC			UL8	BUL			DEPTHS	ORZEK	/ATION:	,								
							DT	SD 06	512	90	5 -0	28	-03	4 7	Т	15			7								
	[MESSENGR TIME		CARD		n) T	70	s °/	SIG	MA-T	SPECIFIC			¥ ∆ NN.	D.		JNO	O ₂ ml		PO 4-P		4 L _ P	NO ₂ -N	NO3-N	51 04-51	рН	2
		HR 1/10	1	TIPE							anom	~ L1 - X1		x 10		AETC	CITY		7	g - e1/l	۰ 9 م	01/1	µg - α۱/۱	ug ~ a1/1	yg - 01/1		-
	j																				1						\neg
				STI			182	3395		35	000	737	9	000	0	143											
		075		085 511	0000		182	3395		35	000	7.7.7	2	000	_	143											
				0B5	0010 0010		182 182	3395 3395		35 35	000	131.	2	000	1	143											
				ST	-		181	3396		36	000	7291	Ω	001	5	143											
		005		085	0025		181	3397		36	000					143											
				ST	0030	-0	179	3398	27	37	000	7135	5	002	2	144	00										
				085	0030		179	3398		37						144											
				ST			174	3401	27		0000	5904	4	003	6	144											
				085	0050		174	3401	27		0.00		,	005	2	144											
				STI OBS	0075		143 143	3410 3410	27 27		0000	284	4	005	2	144											
				STI			139	3413	27		0000	505	3	006	R	144											
				085	0100		139	3413	27						_	144											
				OBS	0112	~0	145	3423	27	56						144	34										
				OBS	0116		133	3419	27							144	39										
				STI			135	3422	27		000!	36!	5	008	2	144											
				085 510	0125 0150		135 138	3422	27 27		0005	. 7 4 /	_	009	_	144											
				085	0150		138	3423	27		000:	200	0	009)	144											
				OBS	0192		153	3428	27							144											
				STI			170	3429	27		0004	+67	7	0120	0	144											
				OBS	0200	-0	170	3429	27	62						144	37										
				STI			174	3433	27		0004	+330	0	014	3	144											
				085	0250		174	3433	27							144											
				OBS	0291	-0	179	3435	27	67						144	+49										

TABLE II.—Continued.

REFERENCE	r				MARSDEN	STATION TI			DRIGH	11 A T O PIE			MAX.									
CTRY IO.	CODE	LATIT	UDE L	DAGITUDE 5	SQUARE 10° 1°	MD DAY H		YEAR	CRUISE	STATION NUMBER		DEPTH TO BOTTOM	OEPTH OF S'MPL"		SERVATIO		THER CODI		2		NODC STATION NUMBER	
318154	GL	7655	515 0	32475W	555 62	02 21 1		970	00			340	3 MPL	DIR.	H GT PER	SEA	X 2	0 3			0005	
					COLO		SPEED	BARO		MP. °C	VIS.	ND, OBS.	SPE	CIAL	, ·				,	,		
					DT		FORCE SO5	(mbs)		-027	7	DEPTHS	OBSERV	A IIUN 3								
	MESSENG	a CAST	CARD	T			Т	-	SPECIFIC VOL		Δ D	_			T.,	.			1		1	
	HR 1/1	NO.	TYPE	DEPTH (m)	T *C	5 %.	SIGM	A-T	ANDMALY-X	107	Δ D. M. M.	VELD		D2 m1/1	PO4-		DTA (-P	NO2-N µg - 01/1	ND3-N			200
		1	STO	0000	-0154	3394	273	3	000752	3 0	000	144	.07									#
	13	7	085	0000	-0154	3394	273	3				144	07									
			STD OBS	0010	-0154 -0154	3394 3394	273 273		000751	7 0	008	144										
	00	5	STD OB5	0020 0025	-0137 -0134	3395 3395	273 273		000750	4 0	15	144										
			STD OBS	0030	-0135 -0135	3395 3395	273 273	3	000748	2 0	023	144	21									
			STD	0050	-0139	3396	273	4	000738	2 00	37	144										
			08s 08s	0050 0054	-0139 -0137	3396 3396	273 273					144										
			08S ST0	0073 0075	-0139 -0151	3398 3398	273		000718	0.00)56	144										
			OBS	0075	-0151	3398	273	6	000118	0 00	,,,,	144	21									
			OBS STD	0091 0100	-0140 -0144	3400 3401	273		000695	7 00	73	144										
			08s 08s	0100 0107	-0144 -0157	3401 3402	2739					144										
			STD OBS	0125	-0137 -0134	3410 3413	274	6	000627	6 00	90	144	38									
			STO	0150	-0139	3418	275	2	000564	5 01	05	144 144	42									
			OBS STD	0150 0200	-0139 -0159	3418 3423	275		000517	0 01	32	144										
			OBS STD	0200 0250	-0159 -0165	3423 3425	275		000497	0 01	57	144										
			OBS STD	0250	-0165 -0172	3425	275	9				144	47									
			OBS	0300	-0172	3429 3429	276		000461	2 01	81	144 144										
			OBS	0335	-0182	3433	2766	5				144	55									
REFERENCE CTRY ID.	SHIP	LATITU	DE LO	ACILINDE PAGE	MARSDEN SQUARE	STATION TIM		AR C	DRIGINA RUISE ST	ATDR'S		10	MAX. DEPTH	OBSE	VAVE RVATION	s	WEA- THER	CLOUD		57/	ODC	
CTAY ID.	CODE	•	1/10	· 1/10 ° ¥	10° 1°	IGMTI	1/10 YE		RUISE SI NO. N	TATION UMBER	80	MOITIC		OBSE	NAVE RVATION		THER	CDDES		517	JMBER .	
CTAY ID.	CODE	7726	1/10	- 0 7	10° 1° 76 0	IGMTI MO OAY HR. 03 01 23 ER WI	1/10 1/10 1/10	70 BARO-	NO. N	ATION UMBER	0.4	937	DEPTH OF 'MPL'S	DIR	RVATION		THER	CDDES		517	ATION	
CTAY ID.	CODE	•	1/10	· 1/10 ° ¥	10° 1° 6 555 76 0 WAY COLOR CODE	IGMTI MO DAY HR. 3 01 23 ER WITTRANS. DIR.	YE	70 BARO- METER (mbs1	NO.	ATION UMBER IP. °C WET BULB	O G	937 NO. 085. EPTHS	DEPTH OF 'MPL'S	DIR	RVATION		THER	CDDES		517	JMBER .	
CT8Y ID. COOR NO. 1	GL	7726	1/10 5 S 0 3	· 1/10 ° ¥	10° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1°	IGMTI MO OAY HR. 03 01 23 ER WITTENS. DIR.	YE	70 SARO- METER (mbs) 925	OOS AIR TEM DRY BULB	TATION UMBER	0 ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	937 NO. 085. EPTHS 0	DEPTH OF 'MPL'S SPECI IBSERVA	DIR	RVA TION	SEA	THER CODE	TYPE AMT		0	JMBER .	
318154	CODE	7726	1/10	· 1/10 ° ¥	10° 1° 6 555 76 0 WAY COLOR CODE	IGMTI MO DAY HR. 3 01 23 ER WITTRANS. DIR.	YE	70 BARO- METER (mbs) 925	NO.	WET BULB	O G	937 NO. 085. EPTHS	DEPTH OF "MPL'S SPECI IBSERVA	DIR	RVATION	TD.	X7	CDDES	NO3-N	517	JMBER .	NCC
318154	GL AESSENGR	7726	1/10 5 S O 3	* 1/10 ° ₹	10° 1° 1° 1° 1° 555 76 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	IGMT1 MO OAY HR. 03 01 23 RR WIP TRANS DIR. SD 02 S S */*.	YE 1/10 22 19 ND SPEED OR FORCE 606 SIGMA	70 BARO- METER [mbs] 925	RUISE SI NO. N OO5 AIR TEN DRY BULB -058	ATION UMBER WET BULB	7 2 D. M.	937 NO. 085. EPTHS 0	DEPTH OF SAME SPECIAL	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	800
318154	GL AESSENGR	7726	CARD TYPE STD OBS	- 1/10 P Z 6017W DEPTH (m)	SQUARE 10° 1° 1° 555 76 C WAT COLOR CODE DT 1 ° C -0173 -0173	IGM11 MO OAY HR. 13 01 23 ER WID TRANS IGM1 SD 02 S S */	YE 1/10 22 19 ND 3FEED OR FORCE 606 SIGMA 2734	FARO-METER (mbs1 925	AIR TENDORY BULB -058	ATION UMBER UMBER WET BULB	77	937 NO. 085. EPPTHS 0	DEPTH OF COMPL'S SPECIAL BSERVA	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	S C C
318154	GL AESSENGR	7726	CARD TYPE	- 1/10 P Z 6017W DEPTH (m)	SQUARE 10° 1° 1° 555 76 CC WAT COLOR CODE DT 1 ℃ -0173	IGMT1 MO OAY HR. 03 01 23 RR WIP TRANS DIR. SD 02 S \$ *%.	YE 1/10 22 199 ND SPEED OR FORCE 606 SIGMA	70 SARO- METER [mbs1 925 T S]	RUISE SI NO. N OO5 AIR TEN DRY BULB -058	ATION UMBER UMBER WET BULB	77	937 NO. OBS. EPTHS O	SPECI SPECIAL OF SPECIAL SPECI	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	SCC
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE STD OBS STD OBS STD	DEPTH (m) 0000 0000 0010 0020	SOUARE S	MO OAY MR. O OAY MR. O OAY MR. S D O 2 S S */. 3394 3394 3394 3399	2734 2734 2734 2734 2734 2734 2734	70 SARO-METER (mbs1 925 C	AIR TENDORY BULB -058	ATION UMBER P. C WET BULB AE DYN X	7	937 937 NO. 065. 605. 627 67 17 SOUN VELOC 1439 1439 1439 1439	DEPTH OF CONTROL OF CO	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	NOC.
318154	GL AESSENGR	7726	CARD TYPE SID OBS SID	OOOO OOOO OOOO OOOO OOOO OOOO OOOO OOOO OOOO	SQUARE 10° 1° 1° 555 76 [C WAT COLOR CODE DT 1 ° C -0173 -0173 -0173 -0180 -0182 -0182	No. No.	2734 2734 2734 2734 2734 2734 2734 2734	70 8ARO-METER (mbs1 925 51 60 60 60 60 60 60 60 6	RUISE SI NO. 005 AIR TEM DRY BULB 1058 PECIFIC VOLUM NNOMALY—XID	ATION UMBER IP. T WET BULB AE Z DYN X	900 000 000 000 000 000 000 000 000 000	3937 NO. OBS. OBS. OBS. OBS. OBS. OBS. OBS. OB	SPECIAL SERVA	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	SCC
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE STD OBS STD	DEPTH (m) 0000 0010 0010 0025 0030 0030 0050	SQUARE 10" 1" 1" 555 76 CODE	No. No.	2734 2734 2734 2734 2734 2739 2739 2739	70 8ARO-METER [mbs1 925 C C C C C C C C C	RUISE SI NO. 005 O05 AR TEN ORY BULB O07476 0007476	AFE SAFE DAME	800 800 800 800 800 800 800 800 800 800	300N VELOCE 1439 1439 1439 1439 1439 1439 1439 1439	DEPTH OF OF TAPL'S SPECIOUS SERVA D B B B B B B B B B B B B B B B B B B B	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	SOC.
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE SID OBS SID	OCO	SQUARE 10" 1" 1" 555 76 10" 1" 1" 1" 1" 1" 1"	NO OAY HR. 23 01 23 ER WIND DIR. SD 02 S S 3394 3394 3394 3394 3399 3400 3400 3400	2734 2734 2734 2734 2734 2734 2739 2739 2742 2742 2748	770 8ARO-METER (mbs1 925T S1	RUISE SIND. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO	ATION UMBER WET BULB AT DYN X OO OO OO	8COOE DO 77 M 1103	1439 1439 1439 1439 1439 1439 1439 1439	DEPTH OF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	MUU
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE SID OBS	OCO	SOUVARE 10" 1" 1" 555 76 CODE CODE DT T T -0173 -0173 -0173 -0173 -0180 -0182 -0182 -0182 -0181 -0181	No OAY HR.	2734 2734 2734 2734 2734 2739 2739 2739 2742	70 BARO-METER (mbs) 925 CC CC CC CC	RUISE SI NO. 0052 AIR TEM CRY BY PICIFIC VOLUMENOMALT—XIG 0007476 0007476 0007476	MET BULB	800 000 000 000 000 000 000 000 000 000	SOUN VELOC 1439 1439 1439 1439 1439 1439 1439 143	DEPTH OF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	NUC
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE SID OBS	OCEPTH (m)	SQUARE 10" 1" 1" 1" 555 76 10 1" 1" 1" 1" 1" 1"	NO OAY HR. 23 01 23 ER WILLIAM SDR. SD 02 S S S S S S S S S S S S S	VE 1710 22 199 3710 3710 3710 3710 3710 3710 3710 3710	70 8ARO-METER (Imbal 925 C C C C C C C C C	RUISE SINO. NO. O. O	MET BULB	800 000 000 000 000 000 000 000 000 000	937 100 5 100 10	DEPTH OF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	MUU
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE STD OBS STD	DEPTH (m) 0000 0010 0010 0025 0030 0050 0050 0075 0100 0107 0125	SOUARE 10" 1" 1" 555 76 16 DT T C -0173 -0173 -0173 -0173 -0182 -0182 -0182 -0182 -0181 -0181 -0177 -0180 -0180 -0180 -0180 -0157 -0160	3394 3394 3394 3394 3394 3394 3394 3394	VELOCITIES NO. 1010 N	70 SARO-METER (mbal 10 10 10 10 10 10 10 1	RUISE SINO.	ATION WET	800 00 00 00 00 00 7 15 22 2 3 5 5 1 666	937 1 170	DEPTH OF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	NUC
318154	GL AESSENGR TIME (4R 1/10	7726	CARD 1995 STD OBS OBS	OCO	SOUARE 10° 1° 1° 1° 555 76 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	No. CAY HR.	VE 17/10 2 199 2 199 3 51610 5160A 5160A 52734 2734 2734 2734 2738 2739 2739 2742 2748 2755 2762	70 8ARO-METER (The ball of the ball of th	RUISE SIND. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO	ARTON UMBER LIFE TO THE STATE OF THE STATE O	800 000 77 72 1103 103 103 103 103 103 103 10	9070 9070 9070 9070 9070 9070 9070 9070	DEFTH OF CF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	NUU.
318154	GL AESSENGR TIME (4R 1/10	7726	CARD 1976 S T D OBS STD OBS	OCO	SOUVARE 10° 1° 1° 555 76 0 WAT COLOR CODE DT 1 ° C 0173 -0173 -0173 -0173 -0182 -0182 -0182 -0182 -0182 -0182 -0182 -0180 -0180 -0180 -0180 -0180 -0180	3394 3394 3394 3394 3394 3394 3394 3394	VECTOR 10 PT	70 \$ARO-METER (mbs) 925 -T \$1,000 C C C C C C C C C C C C C C C C C C	RUISE SI NO. 0052 AIR TEM DRY BH - 058 - 058 - 007476 0007476 0007476 0007476 0006656 0006974	ATION UNSER	000 VIS. COOLED TO	9 NO	DEPTH OF C	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	NUU
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE SID OBS	OCO	SOUVARE 10° 1° 1° 1° 555 76 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	No. CAY HE.	VE VE VE VE VE VE VE VE	70 BARO-METER 925 -T S;	RUISE SIND.	ATION UMBER	ecc	NOO NOOS. NOOS	DEPTH OF CF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	MUU
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE STD OBS OB	OCO	SOUARE 10" 1" 1" 1" 1" 1" 1" 1	No OAY NE.	The state of the	70 8ARO	RUISE SINO. NO. NO. NO. NO. NO. NO. NO. NO. NO.	ARTON UMBER LIFE TO THE MEDITAL TO T	000 77 77 12.2.2.3.5 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	1439 1439 1439 1439 1439 1439 1439 1439	DEPTH OF CF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	NUU
318154	GL AESSENGR TIME (4R 1/10	7726	CARD 1976 STD OBS	DEPTH (m) 0000 0000 0010 0010 0020 0025 0030 0050 0075 0100 0107 0125 0150 0150 0200 0250 0250 0250 0250	SQUARE 10° 1° 1° 1° 1° 1° 1° 1	No CAY NE No CAY NE NE NE NE NE NE NE N	VE VE VE VE VE VE VE VE	70 BARO	RUISE SIND.	ARTON UMBER LIFE TO THE BULB BULB BULB BULB BULB BULB BULB BUL	000 77 77 12.2.2.3.5 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	1439 1439 1439 1439 1439 1439 1439 1439	DEPTH OF CF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	MUU
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE SID OBS SID	OCO	SOUARE 10" 1" 1" 1" 1" 1" 1" 1	No OAY NE.	VIII	70 SARO	RUISE SINO. NO. NO. NO. NO. NO. NO. NO. NO. NO.	ATION UNSER	860 000 000 000 000 000 000 000 000 000	9 NO OSS. 1439 1439 1439 1439 1444 1441 1441 1442 1442 1442 1442 144	DEPTH OF CF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	and
318154	GL AESSENGR TIME (4R 1/10	7726	CARD 1976 5 5 5 5 5 5 5 5 5	OCO	SOUARE 10° 1° 1° 1° 1° 1° 1° 1	No CAY NE No CAY NE NE NE NE NE NE NE N	VE VE VE VE VE VE VE VE	70 BARO	RUISE SINO. OD55 AIR TEM CRY CRY DRY DRY DRY DRY DRY DRY DRY DRY DRY D	ATION UNSER	860 000 000 000 000 000 000 000 000 000	1439 1439 1439 1439 1439 1439 1439 1439	DEPTH OF CF	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	MUU
318154	GL AESSENGR TIME (4R 1/10	7726	CARD TYPE SID OBS SID	OCEPTH (m) OCEPTH	SOUARE 10" 1" 1" 1" 1" 1" 1" 1	No OAY HEL	VE VE VE VE VE VE VE VE	70 BARO	RUISE SINO. OD55 AIR TEM CRY CRY DRY DRY DRY DRY DRY DRY DRY DRY DRY D	ATION UNSER	000 7 7 15 10 10 10 10 10 10 10 10 10 10	9 NOO 9 NOO 9 NOO 9 NOO 17 SOUN VELOC 1439 1439 1439 1439 1439 1440 1441 1442 1442 1442 1444 1446 1446 1447 1448 1448 1449	DEPTH OF C C C C C C C C C C C C C C C C C C	ORSE DIR. IN	PD4~P	TD.	X7	TYPE AMT O 3		5104-Si	JMBER 1006	MUU

REFERENCE	SHIP	LATITUOE	100	GITUOE	DCTR	MARS			ON TIA		YEAR			ATOR'S		OEPTH	MAX, OEPTH	000	WAV		WEA	Crono			NOOC
CODE NO.	CODE	1/10		1/10	N O	10*		MO TO			TEAR	CRUISE NO.		TATION		TO MOTTO8	OF S'MPL"		ERVA		THER	CODES			TATION
0.0057	C.				-								_		-		2 MFL	OUL	HGTP	ER SEA	+	TYPE AM			
318154	GL	77265S	036	6017W		555	76 WA	- 2			970		00!			0918	<u></u>	Ш,			X 2	6 8			0007
							COLOR		W	SPEED	BARC)• 	ORY TEA	MP. °C	VIS.	NO. 085.		CIAL							
							COOF	TRANS.	DIR.	FORCE	(mbs		ULB .	BULR	COD	DEPTHS	OBSERV	ATIONS							
									04 5	509	899	-06	5.7		6	14									
								-	- 1	, ,	107			-	<u></u>	1									r
		LCAST C.	ARO YPE	OEPTH &	m)	T	70	5	٠/	SIGM	A-T	SPECIFIC ANOM		0, 0	Δ. Ω. MM.	. AEFO		03 ml/l		4-P	TOTAL P	NO2-N	NO3-N	\$104-\$1	ρН
	HR 1/10														103	******	70111		h8 .	01/1	yg - a1/1	1/10 - QU	yg - o1/1	µg - a1/1	-
																				- 1					
			TD	0000		~0]	-	319		273		000	7041	1 00	000	143	94	802	•						
	027	08		0000		-01		339		273						143	-	802	13	1		013	195	044	
	0.0-	-	TD	0010		-01		340		273		000	7020	0 0	007	143		819							
	027	08	_	0016		-01		339		273	-	000	07			143		827	13	6		012	196	045	
			TD	0020		-01	-	340	-	273		0006		-	14	143		831							
	027	08		0030		-01		340		274		0006	89.	3 01	21	143		837	12	7		013	300		
	021		TD	0042		-01		340		274		0006	5.75	5 00	34	144		840	13	/		012	208	047	
	027	08		0068		-01		340		274		0000	,,,,) ((, , 4	144		826	16	2		011	229	051	
	02.		TD	0075		-01		341		274		0006	099	9 00	50	144		825	10	_		011	227	001	
	027	08		T0096		-01		341	46	275						144		816	17	4		010	234	055	
		S	TD	0100		-01	80	341	6	275	2	0005	706	5 00	65	144	14	809				0			
		S	TD	0125		-01	74	342	2	275	6	0005	246	5 00	79	144	22	775							
	027	08	S	0146		-01	73	342	65	276	0					144	26	757	19	6		012	261	062	
		_	TD	0150		-0]		342		276		0004	848	8 00	91	144	27	757							
	027	08	_	T0198		-01	_	343	-	276						144		753	20	0		009	275	061	
			TD	0200		-01		343		276		0004		-	15	144	_	753							
			TD	0250		-01	_	343		276		0004			36	144		746							
	0.27	_	TO	0300		-01		343		277		0003	886	7 0.	57	144		739							
	027	08	5 T0	T0300		-01		343		277		000	1000	0.1	90	144		739	20	3		016	290	064	
	027	08		0413		-01		345		278		0002	:000) ()	90	144		723 721	20	0		000	201	0/7	
	021		TD	0500		-02		345		278		0002	067	7 02	15	144		712	20	7		000	286	067	
	027	08		T0510		-02		345	-	278		0002	. 00 1	, 02	. 1)	144		711	21	3		001	294	070	
	021		TD	0600		-02		346		279		0001	519	9 04	33	144		709	2 1	_		001	2 / 4	070	
	027	08		T0602		-02		346		279						144	_	709	21	4		002	297	073	
		S	TD	0700		-02	19	346	5	279:	3	0001	382	2 04	48	145		710							
	027	08	S	0710		-02	18	346	56	279	4					145	05	710	21	6		001	309	072	
		_	TD	0800		-02		346	7	2794	4	0001	244	+ 04	61	145	20	703							
	027	08		T0812		-02		346		279						145	22	702	21	5		005	294	071	
		_	TD	0900		-02		346		279		0001	120	02	72	145		701							
	027	08	S	10913		-02	18	346	78	279!	5					145	39	701	21	5		001	296	073	

REFERENCE	SHIP	1 4 97911		LONGTHON	등등 선	ARSOEN		STATION		WF 1.0		ORIGIN				EPTH	MAX. OEPTH	000	WAVE		WEA-				1000
CODE NO.	COOE	LATITU	1/10	LONGITUOE	[조부]			I YAG ON		YEAR	CRUISE NO.		STATIO			TO TTOM	OF S'MPL'S		HGT PER		THER	TYPE			UMBER
	6.	7701			1	_	_	-		107-	+				1		3 MrL 3	DIR	PIGT PE	3EA	+	TIPE AM	11		
318154	+ GL	7734	65	035399W	55	_	WATE		073	1970		00			1	85		<u> </u>		I	X 7	4 8			8000
						-			WINO I SPEEC	BAR	0-	AIR TE		VIS	5- I A	NO.	SPEC								
						CO		IRANS. OIR.	FORC	/ME1		DAY	BUI			PTHS	OBSERV.	ATIONS							
								0.0	-		0 -0	56	-05	7 6	1	2									
							-	100	-	1,2			100	. -				[_	_					
	MESSENGR TIME	CAST NO.	CAR		(m I	7 ℃		5 %.	SIG	MA-T	SPECIFIC	C VOLL		OYN.	м.	VELO		02 ml/l	PO4-		TOTA L-P		NO3-N	\$104-\$1	pΝ
	HR 1/10	1	117										-	x 10 ³	,	AFFO	CIII		N8 - 1	171	µg = 01/1	µg − σ1/1	µg - α1/1	μg - at/l	
			ST			016		3395		35	000	739	5	0000	-	144		798							
	073	3	085			016		33953		35						144	-	798	136	5		011	195	046	
			ST			017		3397		36	000	723	9	0007		144		799		_					
	073	3	085	_		017		33975		37						144		800	140)		010	196	047	
			ST			017		3398		37	000	717	4	0015		144	-	801				- 1 1	200	0.4.0	
	073	3	085			017		33980 3398		37	000	71/	c	0000		144		802	14!	>		011	200	048	
			ST ST			017! 017:		3399		37	000			0022		144		801 792							
	073	2	085			017		33987		37	ניטט	109	U	0036		144	-	791	14	7		010	222	049	
	012		ST			016		3401		39	000	690	1	0053		144		792	17	,		010	222	047	
	073	3	085			016		34020		40	00.5	3,0	*	0000		144		792	15	5		009	216	051	
	0,-		ST			015		3407		44	000	645	8	0070		144		810				00,			
	073	3	085			015		34075		44			_			144		811	166	5		009	219	053	
			ST	D 012	5 -	015	6	3410	27	46	000	621	6	0086	5	144	28	793							
			ST	D 015	0 -	015	7	3413	27	49	000	597	0	0101	1	144	33	777							
	073	3	085			015	7	34131		49						144		775	18	1		8 00	243	058	
			ST			017		3419		54	000	543	3	0130		144		765							
	073	3	085			017		34198		55				. 1		144		764	19	I		009	284	061	
			ST			017		3424		58	000		-	0156	-	144		752							
	373	3	ST 08S			018		3429 34289		62	000	459	0	0180		144		739 739	20	1		010	284	062	
	372	5	5 T			020		3444		75	000	370	6	0219		144		728	20.	T		010	204	002	
	0.73	3	085			021		34442		75	000	220	0	0213		144		727	20	7		012	287	067	
	012		ST			021		3465		92	000	159	0	0243		144		707						50.	
	073	3	085			021		34656		93	000	,	_			144		706	216	5		000	299	072	
	073		085			022		34655		93						144		701	216			005	322	072	
																									9

REFERENCE	- 1		-																						
CTRY IO.	SHIP	LATITU	QF.	FONGITUOE P	MARS		STATIC	SMIT NO		YEAR			ATOR'S	_	DEPTH	H OEPT		OBSE	WAY		WEA				NOOC
CODE NO.	COOE	•	1/10	FONGITUOE 17/10	10"			AY HR.T.		ILAK	CRUISE NO.		TATION		BOTTO	M S'MPL				ER SEA	THER	COOES			NUMBER
318154	GL	7734	65	035399W	555		03 0		-	970		000		_	0585			UIK. F	1611 P	EK 2FY	`	TIPE AM	-	-	
1 210124	OL	1137	05	OJJJJJW	اردرا	WA		WIN		T		AIR TE				2		—, [-	X7	0 3		- 1	0009
						COLOR		1.5	PEED	METE	-	DRY		vis.	NO.		ECIAL								
						COOE	(m)	DIR.	OR DRCE	(mbs		ULB	BULB	COD	OEPTH	S OBSER	VATIO	2110							
						DT	SD	00 5	00	930) -0	56	-057	6	14	1									
[MESSENGR			.	T		1						Π.		1			_	_						
	TIARE	CAST I NO.	CARO		T	°C	۶.	4.	SIG M	A-1	SPECIFIC			YN. M		LOCITY	03	ml/I		4-P	FOTAL-P	NO3-N	№03-И	\$104-5	
-	HR 1/10	-			-		+	-					-	x 10 ³					νQ *	81/1	μg = α1/1	N8 - a1∖	yg − ai/i	VQ - 01/	1
Į.				0000	1		1220	.	. 7 .	_		770	, _		١.,										
	0.07		ST		-01		3390		273		000	1186	5 0	000		398									
	087		OBS	0000 D 0010	-01		3390		273		000	7776		000		398									
			085		-01		3390		273		000	(()	9 0	008		399									
			ST		-01		3396		273		000	721	2 0	015	-	402									
	005		OBS	0025	-01		3398		273		000	1010		01)	_	403									
			ST		-01		3400		73		000	7001	1 0	022		404									
			OBS	0030	-01		3400		273							404									
			ST	0050	-01		3402		74		0006	6837	7 0	036		408									
			OBS	0050	-01	.70	3402	2 2	74	0						408									
			ST	0 0075	-0]	.59	3408	3 2	74	5	0006	5391	0	053	14	419									
			OBS	0075	-0]	.59	3408	3 2	74	5					14	419									
			ST		-01	.58	3410) 2	740	6	0006	5226	0	069	14	424									
			OBS	0100	-01	58	3410) 2	74	6					14	424									
			STI		-01	57	3415	5 2	75	0	0005	5831	١ 0	084	14	429									
			OBS	0125	-01		3415		750						14	429									
			ST		-01		3416		75		0005	5737	7 0	098	-	433									
			OBS	0150	-01		3416		75						14	433									
			STI		-01		3423		275		0005	5161	. 0	125	14	440									
			OBS	0200	-01		3423		75							440									
			STI		-01		3430		276		0004	+543	3 0	150		441									
			065	0250	-01		3430		276							441									
			STI		-01		3433		760		0004	+268	3 0	172		448									
			OBS	0300	-01	_	3433		766							448									
			OBS OBS	0347	-01		3436		76							454									
			005	0387	-02	09	3456	0 4	78	כ					14	454									

No.	REFERENCE CTRY IO. CODE NO.	SHIP COOE	LATITU	DE LO	GITUOE 50	MARS SOUA	ARE .		ON TI		YEAR	CRUISE NO.		TOR'S		OEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	085		TIONS	WEA- THER CODE	CLOUG		2	NODC TATION UMBER	
WATES WIND Service WATES WIND COOR WATES		C	7722								070	1		_	-	0575	3	D.n.	10,				1		0010	
COOR Inches OR Inches OR Inches OR Inches OR OR OR OR OR OR OR O	1 3 1 8 1 5 4 1	GLI	(133)	15 05	2381M	ا دددا				_	1				\top	Г		L		-	1 ^ /	1 013	1	- 1	0010	
Note						1,	COLOR	TRANS.	OIR			R E	YRC	WET	VIS.	085.	OBSERV	ATIONS								
MISSINGE CAST CASO DEPTH (sol) T C S '-4. SIGMA-T SIGCINC VOLUME SA D D. VOLUME NO VOLUME							COOE	Im)	OIK,	FORCE	-	_	-	BULB	1											
STD ODG							DT	SD	19	503	90	7 -01	85		7	16										
229		TIME 0			DEPTH (m)	ī	°C	2	٠/٠.	SIGM	A-T			, C	YN, M			O2 ml/l							pH	s C C
229											1															
STD 0010 -0178 3398 2737 0007151 0007 14397 085 0010 -0178 3398 2737 14397 STD 0020 -0175 3403 2741 0006767 0014 14401 005 085 0025 -0172 3404 2742 14407 085 0030 -0167 3404 2742 14407 085 0030 -0167 3404 2742 14407 085 0030 -0166 3403 2741 0006770 0034 14411 085 0050 -0166 3403 2741 14411 STD 0075 -0161 3405 2742 0006615 0051 14417 085 0075 -0161 3405 2742 14417 085 0075 -0161 3405 2742 14417 085 0075 -0161 3405 2742 14417 STD 0100 -0153 3409 2745 14417 085 0100 -0153 3409 2745 14426 STD 0125 -0152 3412 2748 0006076 0083 14431 085 0125 -0152 3412 2748 006076 0083 14431 SSTD 0150 -0159 3415 2750 14431 SSTD 0150 -0159 3415 2750 14432 OBS 0150 -0159 3415 2750 14432 SSTD 0200 -0161 3421 2755 0005817 0125 14440 OBS 0200 -0161 3421 2755 14440 OBS 0200 -0161 3421 2755 14440 OBS 0250 -0170 3426 2760 0004877 0151 14445 OBS 0250 -0170 3426 2760 0004877 0151 14445 OBS 0250 -0170 3426 2760 0004877 0151 14446 OBS 0260 -0184 3432 2765 14448 OBS 0300 -0184 3432 2765 0004345 0174 14448 OBS 0300 -0184 3432 2765 0003338 0212 14462												000	7157	0	000											
OBS		229										000	7151	0	007											
STD 0020 -0175 3403 2741 0006767 0014 14401 14401 14404 STD 0030 -0167 3404 2742 0006704 0021 14407 085 0030 -0167 3404 2742 14407 1												000	1101	. 0	007											
005 0B5 0025 -0172 3404 2742 14404 STD 0030 -0167 3404 2742 0006704 0021 14407 085 0030 -0167 3404 2742 14407 STD 0050 -0166 3403 2741 0006770 0034 14411 085 0050 -0166 3403 2741 14411 STD 0075 -0161 3405 2742 0006615 0051 14417 085 0075 -0161 3405 2742 STD 0100 -0153 3409 2745 0006317 0067 14426 085 0100 -0153 3409 2745 STD 0125 -0152 3412 2748 0006076 0083 14431 085 0125 -0152 3412 2748 0006076 0083 14431 085 0125 -0152 3412 2748 0006076 0083 14431 085 0125 -0152 3412 2748 STD 0150 -0159 3415 2750 085 0150 -0159 3415 2750 085 0150 -0159 3415 2750 085 0150 -0161 3421 2755 085 0200 -0161 3421 2755 085 0200 -0161 3421 2755 085 0200 -0161 3421 2755 085 0200 -0161 3421 2755 STD 0250 -0170 3426 2760 085 0250 -0170 3426 2760 085 0250 -0178 3422 2765 STD 0300 -0184 3432 2765 STD 0300 -0184 3432 2765 STD 0400 -0193 3444 2775 0003338 0212 14462												000	6767	0	014											
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STD 0050 -0166 3403 2741 0006770 0034 14411 OBS 0050 -0166 3403 2741 14411 STD 0075 -0161 3405 2742 0006615 0051 14417 OBS 0075 -0161 3405 2742 14417 STD 0100 -0153 3409 2745 0006317 0067 14426 OBS 0100 -0153 3409 2745 0006317 0067 14426 STD 0125 -0152 3412 2748 0006076 0083 14431 OBS 0125 -0152 3412 2748 14431 STD 0150 -0159 3415 2750 0005811 0098 14432 OBS 0150 -0159 3415 2750 0005811 0098 14432 STD 0200 -0161 3421 2755 0005317 0125 14440 OBS 0200 -0161 3421 2755 0005317 0125 14440 OBS 0200 -0161 3421 2755 0004877 0151 14445 OBS 0250 -0170 3426 2760 OBS 0250 -0170 3426 2760 OBS 0266 -0178 3429 2762 STD 0300 -0184 3432 2765 0003338 0212 14448 STD 0400 -0193 3444 2775 0003338 0212 14462				SID	0030	-01	67	340	4	274	2	000	6704	0	021	14	407									
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													0.0.0		2											
UBS 0400 -0193 3444 2775 14402								-				000	3338	3 0	212											
OBS 0419 -0206 3450 2780 14460																										

			-												1					,		
REFERENCE	SHIP	LATITUDE	10	NGITUOE		RSOEN UARE	STATE	ON TI		YEAR		IGINAT		DEPTH TO	MAX		WAVE ERVATION:	S THER				NOOC
CODE NO.	COOE	1/		17/10	10°		MOID			12711	CRUISE NO.		TION MBER	BOTTO	A STAFF		HGT PER	CODI				HOITAT
318154	GI	762465		0362W	55		03 0	_	-	970		800		0350	+ -	1 0.2	1101111111	X7	8 6	_		0011
1 3 1 6 1 5 4	+ GL	102403	103	0302W	[55]	MA		_	1110		0.15	E TEMP.					1 1 1	^ /	100	1	- 1	0011
						COLOR			SPEED	METE)-		VET COD	NO.		CIAL						
						COOE	im)	OIR.	FORCE	[mbs			nrs con	DEPTHS	PRZEK,	2 NOIT AV						
								03	527	85	-089	9	5	08								
	MESSENG			1			1						₹ △ 0	Т.			T			_	T	1
	TIME	or NO.	TYPE	OEPTH (m)	T °C	\$	٠/	SIGN	A-T	ANOMAL		DYN. M		OCITY	O 2 mi/l	PO4-P	TOTAL-P		NO3+N vg - ol/l		
	HR 1/10								-				X 10°	-			11	-	7, 0.07	pg - 0//1	20171	
		1	CTD	0000	1.	1102	340	2	274	2	0006	721	0000	1.4	394	775			1		ļ	i
	21		STD BS	0000		0183	340		274		0000	LOI	0000		394	775	144		019	202	048	
	21.		STD	0010		183	340		274		00066	579	0007		396	785	144		01)	202	0+0	
			STD	0020		182	340		274		00066		0013		398	791						
	21		BS	0025		182	340	_	274	_				-	399	793	153		026	205	050	
		-	STD	0030		181	340	6	274	4	0006	516	0020	14	401	788						
			STD	0050	-(180	340	8	274	5	00063	352	0033	14	405	772						
			STD	0075	-(179	341	2	274	8	00060	046	0048	14	410	758						
	21	1 0	BS	0075		179	341		274						410	758	183		021	243	056	
			STD	0100		181	341		275		0005		0063		414	754						
			STD	0125		182	342		275		0005	355	0077		418	748						
	21		BS	0125		182	342		275					-	418	748	197		018	282	060	
			STD	0150		184	342		275		0004	974	0090		422	738	211			201	0.60	
	21		BS	T0175		185	342		276		0004	001	0114		426 430	732 732	211		026	284	062	
	21		STD BS	0200 T0225		185	342		276		00046	334	0114	-	435	731	211		016	293	062	
	21		STD	0250		0183	343		276		00045	517	0137		440	730	211		010	2) 3	002	
			STD	0300		180	343		276		0004		0159		449	727						
	21		BS	T0325		179	343		276		0004.		040)		454	725	216		015	297	065	
	21	_	BS	T0348		180	343		276						458	714	215		018	312	067	
			-													-						

REFERE		SHIP				SQU SQU			ION TI			01	RIGINATO	OR'S	OEPTH	MAX.		WAVE	WE				NOOC
TRY	10.	COOE	LATITU						GMT)		YEAR	CRUISE	STAT		TO	OF	l	ERVA TION	000	e			TATION
000	NO.			1/10	1/10	10.	1.	MO	H YAC	R.1/10		NO.	NUA	ABER	801101	S'MPL"	DIR.	HGT PER	SEA	TYPE AA	AT		OWDER
318	154	GL	7525	55	026285W	554	56	03 0	7 2	23 1	970		009		0245				X 2	0 3			0012
							WA	TER	V	VINO	BARC)- AI	R TEMP.	°C VIS.	NO.	Spei	CIAL						
							COLOR	TRANS.	OR.	SPEED	METE			VET CODE	OBS.	OBSERV							
							-	-		FOICE	lmbs		-										
	_						DT	SO	07	S34	.936	-11	7	7	11	<u> </u>							
	- 1	MESSENGR		CARC	OEPTH (m		°C		-/	SIGM		SPECIFIC		₹ ∆ o	so	UND	O 2 ml/1	PO4-P	TOTAL-	P NO2-N	NO3-N	SI O4~Si	l
		HR 1/10	Y NO.	TYPE	GEFIR (III	" '	C	,	***	310 %	A-1	ANOMA	LY-X107	x 10 ³	. VEL	OCITY	O 3 m1/1	yg = 01/	/اه - وير ا	1 vg - ol/1			рН
	r									1					_			1		1			
	- 1		1	STI	0000	-0	183	339	2	273	2	0007	607	0000	14	393		1	1	1	1	1	1
		223		085	0000		183	339		273		000.		0000		393							
				STI			183	339		273		0007	600	0008		394							
				085	0010		183	339		273					14	394							
				ST	0020		181	340	8	274	5	0006	369	0015	14	399							
		005		OBS	0025	-0	180	341	. 2	274	8				14	401							
				STI	0030	-0	182	341	. 3	274	9	0005	976	0021	14	401							
				085	0030	-0	182	341	. 3	274	9				14	401							
				ST			194	342		275		0005	244	0032		400							
				OBS	0050		194	342		275						400							
				STI			195	342		275		0005	148	0045		404							
				OBS	0075		195	342		275		0000		0050		404							
				STI			195	342		275		0005	131	0058		408							
				085	0100		195	342		275						408							
				STI			195	342		275		0004	961	0070		412							
				OBS	0125 0 0150		195	342		275 276		0004	0 4 0	0083		412 417							
				OBS	0150		195 195	342		276		0004	008	0083		417							
				STI			196	343		276		0004	526	0106		425							
				085	0200		196	343		276		0004	220	0100		425							
				085	0241		196	343		276						433							

REFERENCE CTAY ID. CODE NO. CODE .	TITUDE 1/10	LONGITUGE 17/10	MAR SOU	ARE		GMI		YEAR	CRUISE NO.		OR'S TION MRER		OEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'	OBS	WAVE ERVATION	2	WEA- THER CODE	CLOUD]	5	NODC TATION NUMBER
318154 GL 75	2555	026285W	554	56	03 0	8	053	1970		010			0240					Х7	X 9			0013
	·	,	'	WAT	ER		WIND	BARG	2- A	IR TEMP	. °C		NO.			, , ,				1	1	
				COLOR	TRANS.	OIR	SPEEC OR FORC	METI	ER O		WET	VIS.	200		CIAL /ATIONS							
						07	_	95	5 -14	4		3	8.0									
MESSENGR CA TIME OF N HR 1/10	AST CAR		1) T	°C	S	٠/٠٠	SIG	MA-T		VOLUME *107	OYI	△ 0 N. M 10 ³		DCITA	O 2 m1/i	PO4-P yg - 61/		TA L - P - a1/I	NO2-N ug - o1/I	NO3-N µg - at/l	St O4=\$i	
		_			Τ						T											
	ST			185	339	_	27		000	7641	00	00	14:		815							
053	OBS			185	339									392	815	127			009	181	049	
0.5.0	ST			183	340		27		0006	963	00	07	143		788	157			007	234	05/	
053	OBS			183	340			-	0006	2/0	0.0	1.6	143		788	157			007	214	054	
053	ST 085			185	340		27		0006	0000	00	14		398	767 759	185			005	249	060	
000	ST			186 187	341		27		0006	05.9	00	20	141		759	100			005	247	000	
	51 51			190	341		27		0000			32	144		759							
053	0BS			190	341				000.	,000	00	26	144		759	188			004	266	061	
000	ST			192	341		27		0000	716	0.0	47	144		756	100			00+	200	001	
	ST			194	341		27		0005			61	144		752							
053	085			194	341			-	0002		•	-	-	408	752	199			005	252	061	
000	ST			195	341		27		0005	406	0.0	74	144		748							
	ST		-	196	342		27		0005		0.0	88	144		744							
053	085		-0	196	342	10	27	56					144	416	743	205			006	261	064	
	ST			196	342		27		0005	062	01	14	144	424	744							
053	085	T0203	-0	196	342	38	27	58					144	425	744	207			002	278	065	
053	085	T0237	-0	196	342	98	27	63					144	431	727	212			003	302	067	

REFERENCE	SHIP	1 4 7(71)	05 10	LOTURE ED	MARS			ION TIP		YEAR	ORIGIN.			OEPT	H DEPTH		WAVE ERVATION	WEA THER				NODC
DE NO.	CODE	LATITU	1/10	NGITUDE BO				DAY HR		TEAR		TATIO		BOTTO	0.5	003	HGT PER	CODI				TATION
-	+ +				10*			$\overline{}$								3 DIK	HGI PEX				_	
318154	GL	7525	55 02	6285W	554					970	01:	-		023	5			X3	0 3	1	- 1	0014
					-	WAT	-	W	IN D SPEED	BARC			VIS.	NO.	311	ECIAL						
						COLOR	TRANS.	OIR.	FORCE	M ETE		BUT.		OEPTH		ZNOITAV						
					h	DΤ	SD	07	530	98	-136		6	11								
				1		D (130	10 /	1	70.	. 130	$\overline{}$		1			Т	1			1	T
	MESSENGI TIME HR 1/10	or NO.	CARD TYPE	OEPTH (m)	Т	t	S	٠/	SIGM	A-T	ANOMALY-XI		₹ Δ D DYN. M x 10 ³		OUND	0 2 ml/l	PO4-P	10TAL-P		NO3-N yg - al/t		
	NK 1710		STO	0000	-01	82	338	3.7	272	8 '	0007994	. '	0000	1.	4392 '		ı	'	'	'	'	
	110)	OBS	0000	-01		338		272					14	4392							
			STD	0010	-01	82	338	8 8	272	9	0007910)	8000	1	4394							
			OBS	0010	-01		338		272						4394							
			STD	0020	-01	83	340) 4	274	2	0006671	l	0015	_	4397							
	005	5	085	0025	-01		340		274					_	4399							
			STD	0030	-01		340		274		0006267	7	0022	_	4397							
			085	0030	-01		340		274		000555				4397							
			STD	0050	-01		341		275		0005553	5	0034	_	4400 4400							
			085	0050 0075	-01		341		275		0005381		0047	_	4404							
			STD	0075	-01		342		275		0000000		0041	_	4404							
			SID	0100	-01		342		275		0005285	5	0061		4408							
			OBS	0100	-01		342		275		000020.		0001		4408							
			SID	0125	-01		342		275		0005193	1	0074	_	4412							
			OBS	0125	-01		342		275					1	4412							
			STD	0150	-01	96	342	24	275	9	0005019	7	0086	1	4416							
			085	0150	-01	96	342	24	275	9					4416							
			STD	0200	-01	197	342	28	276	2	0004676	ó	0111		4424							
			085	0200	-01	97	342		276						4424							
			DAS	0229	-01	96	343	34	276	7				1	4430							

REFERENCE	ATITUGE L	ONGITUOE	MARSOEN SOUARE	STATION	TIME	. —	DRIGINATO		OEPTH	M AX. OEPTH		WAVE RVATION:	WEA				NODC
CODE NO. CODE		1/10	10° 1°		HR.1/10	CRUISE NO.	STAT		TO MOTTOM	S'MPL'S		HGT PER	COD				TATION UMBER
330154 61 75	EREC O					20	012		0.325	2 [3	014.	NOT FEEL .		1	1		
318154 GL 75	52555 0	26285W	554 56 WA		174 19		012		0235	<u> </u>	—!	1 !	X 2	6 8	1	- 1	0015
			COLOR		SPEED	ARO-		ET CODE	NO.	SPECIA							
			CODE	fm1 UIR	FORCE	lmbs1 8		JE8	OEPTHS	OBJEKAN	110143						
				09	526	88 -1	12	7	80								
MESSENGA C TIME OF	AST CARO	DEPTH (m)	r %	s ·/	SIGMA-		VOLUME ALT-X197	₹ ∆ 0 0YN, M x 10 ³	SOU		12 ml/l	PO4-P µg - 41/l	101AL-P		NO ₃ -N	51 O4~5i	рН
HX 1710		-			+			A 10				_		-	-	-	
	STD	0000	-0184	3388	2729	1	7905	0000	143		317	l	1	1		ļ	
174	085	0000	-0184	33881	2729	000	1905	0000	143		317	122		010	182	054	
*1-	STD	0010	-0185	3401	2740	0000	6904	0007	143		788	1-2		010	102	024	
174	OBS	0010	-0185	34010	2740				143		788	158		009	200	067	
	STD	0020	-0187	3411	2748	0000	6125	0014	143	97 7	773						
174	OBS	0025	-0188	34140	2750				143	197 7	768	190		005	248	063	
	STD	0030	-0189	3415	2751		5806	0020	143	198 7	768						
	STD	0050	-0192	3417	2753	000	5656	0031	144		766						
174	085	0050	-0192	34167	2753	0001		00.5	144		766	193		006	238	079	
	STD	0075	-0192	3417	2753		5600	0045	144		762						
17/	STD	0100	-0193	3418	2753	000:	5535	0059	144	108 /	758						
174	STD	0125	-0193 -0194	3418	2754	000	5477	0073	144	12 7	754						
	STD	0150	-0196	3419	2754		5418	0087	144		750						
174	085	T0154	-0196	34189	2754	000.	7410	0007	144		749	200		004	261	084	
114	STD	0200	-0195	3421	2756	0005	5217	0113	144		745	200		004	201	004	
174	085	T0203	-0195	34211	2756	300.		- 1 3	144		745	197		002	265	095	
174	OBS	0234	-0198	34283	2762				144		739	206		004	273	098	
	, - 0															0.0	

REFERENCE SHIP	ATITUDE 1/10	FONGITUGE 1986	MARSOEN SOUARE	STATION TIME (GMT)	1/10 YEAR	ORIGINATO	ION	DEPTH OF S'MPL"	OBSE	WAVE ERVATIONS HGT PER SEA	WEA- THER COOE	CLOUG CODES		ST	ATION UMBER
318154 GL 75	5255S	026285W	COLOR	TRANS. DIR.	SPEED METI OR (mb)	ER DRY V	VET CODE	OEPTHS OBSERV	CIAL		X1	013	I	(0016
MESSENGR C TIME OF P	AST CAR		1 %	s %.	526 991 SIGMA-T	SPECIFIC VOLUME	7	SOUND VELOCITY	O2 ml/l		OTA L-P µg - 01/I	NO2-N ug - ai/l	NO3-N yg - at/1	51 O4-5i yg - 01/1	pH C
232	51 085 51 085	0000 0010 0010	-0179 -0179 -0179 -0179 -0179 -0183	3384 3384 3384 3384 3400	2726 2726 2726 2726 2726 2739	0008231	0000	14393 14393 14395 14395 14397			- 1	!			{
005	083 51 083 51	0025 D 0030 D 0030 D 0050	-0184 -0184 -0184 -0194 -0194	3406 3410 3410 3418 3418	2744 2747 2747 2754 2754	0006202	0022	14398 14400 14400 14399 14399							
	ST 083 S1 083	D 0075 0075 D 0100 0100	-0194 -0194 -0195 -0195 -0196	3420 3420 3420 3420 3422	2755 2755 2755 2755 2755 2757	0005381 0005362 0005189	0048 0061 0074	14404 14404 14407 14407 14411							
	083 ST 083 083	0125 0 0150 0 0150 0 0183	-0196 -0189 -0189 -0196 -0196	3422 3423 3423 3428 3428	2757 2758 2758 2762 2764	0005113	0087	14411 14419 14419 14422 14425							
	089 089	0200	-0196 -0196 -0195	3431 3435	2764 2767	0004449	0111	14425							

REFERENCE	SHIP	LATITU	DE	LDNG	TUOE	DEST	SOU		STA	ION IG M I	TIME	YEAR	CRUISE		TION	_	DEPTH	MAX. DEPTH DF	1	WAVE	2115	WEA	CODES		5	NOOC
ODE ND.			3/10		1/10	=	10°	10	MD	DAY	HR.1/10		ND.	NU.	MBER		BDTTDM	S'MPL'S	DIR.	HGT PER	SEA	CDDE	TYPE AM	1	^	NUMBER
318154	GL	7525	55	0262	85W		554	56	03	39	055	1970		014			0235					X3	X 4	-		0017
								WA	TER		WIND	BAR	o	AIR TEMP.	,C	VIS.	ND,	SPE	TAL							
								COLOR	TRANS (m)	DIR	SPEE OR FOR	INCES			V E T	0000	DBS. DEPIHS	OBSERV								
										07	_	$\overline{}$	7 -1	53		7	0.8									
	MESSENGR TIME HR 1/10	CAST NO.	CAF		DEPTH (m I	T	°c	5	٠/	SIC	MA-T		C VOLUME	DY	△ D N. M 10 ³	SOL		D2 ml/l	PO4-		101AL-P 1/10 - gu	NO2-N ug = 01/1	NO3-N 9-01/1	\$1 O4-Si pg = a1/i	
			\$1		0000		-0		33			34	000	7483	0.0	00	143		817							
	055		089		0000		-0:	-	33			34					143	_	817	134	٠		010	197	053	
	0.5.5		\$1		0010		-0	_	339			38	000	7092	0.0	07	143		776	350			010	217		
	055		085		0010		-0		33			38 47	000	6202	0.0	14	143		776 771	159	,		010	217	057	
	055		\$1 0Bs		0020		-0:		34		_	50	000	5202	00	1 4	141		768	185			028	220	061	
	055		51	-	0030			190	34			51	000	5804	0.0	20	141		763	100	,		020	220	061	
			51		0050			194	34			53		5605	00		143		751							
	055		085		0050			194	34			53	000	7007	00	71	143		751	195			014	247	063	
	055		51	_	0075			194	34		_	54	000	5535	0.0	45	144		760	190	,		014	241	003	
			51		0100		-0		34			54		5512		59	144		762							
	055		089		0100		-0		34			54	000	,,,,,	00	- /	144		762	201			007	250	062	
	0,7,7		51		0125		-0		34			54	000	5480	0.0	73	144		749	-01			00.		002	
			51		0150		-0		34			54		5456		86	144		742							
	055		OBS		0150			193	34			54				-	144		742	197	7		010	251	063	
	,,,,		51		0200		-	196	34	_	_	55	000	5361	01	14	144		744							
	055		0B5		0200		-0		34			55					144		744	199			027	238	063	
	055		OB S	-	0230			195	34;			55					144		739	204			013	252	063	

REFERENCE	SHIP				- 5	MAR	SDEN	STAT	ION T	IME			ORIGIN	ATO	t*S		EPTH	MAX. DEPTH		WAVE		WEA	. c	Louo			NOOC	
CTRY ID.	CDDE	LATITU		LONGITUDE	DIN				GMT		YEAR	CRU		TATE			TDM	OF		ERVAT		CDD	. l_	ODES			TATION	
CODE ND.	1		1/10	1/1	0 -	10*	1.	MD I	H YAC	IR,1/10		N	0.	MUP	BEX	-		S'MPL'S	Dir.	NGT PE	R SE	A	TYI	E AM	7			
318154	of GL I	7525	55	0262851	4 l	554			9 1	110	1970		01			0.2	235		L		1	X1	10) 3			0018	
							WAT	ER	٧	MIND	BAR		AIR TE	_	VIS		NO.	SPEC	IAL									
							CODE	TRANS.	DIR.	SPEED OR	MET (mb		BULB	BU	TOD TB	4d 4	OBS. EPTHS	OBSERVA	2 NOIT A									
								_	-	FORCE	-	\rightarrow				+;	 											
							DT	SD	09	516	96	2 -	133	L.,		1	11			,								
	MESSENG	of NO.	CARE		i (m i	T	℃	s	٠/,,	SIGA	F-AN	SPEC	DMALY-I	M.E U?	₹ ∆ C DYN. A X 10 ³	и,	SOU		02 m1/1	PO.		TOTAL-1		2-N - 61/l	NO3-N yg - al/l	\$1 O4~5		200
	HR 1/10			+		+		+-		+		-		-		-		_		+	_		+				-	+
	1	1		_		1			, ,	27		1	0883	2	0000	, !	143	90					1		I	1	ı	
	11/		ST OBS	D 000			185 185	337	-	27		UC	10003	9	0000	,	143											
	110	J	ST				185	337		27		0.0	0882	6	0009	5	143											
			085	00	-		185	337		27		00	70002	0	000,	,	143											
			ST		-		186	340		27		0.0	0674	1	0017	7	143											
	009		OBS	002			187	340	-	274			, , , , ,	-			143											
	00.	,	5 T				187	340		27		0.0	0627	2	0023	3	143											
			OBS	00			187	340	9	274	+6		_				143	98										
			ST				192	341	14	275	50	0.0	0586	3	0035	5	144	00										
			OBS	009	0	-0	192	341	l 4	275	50						144	00										
			ST	D 00'	75	-0	194	341	16	275	52	0.0	0568	8	0050)	144	03										
			OBS	00.	75	-0	194	34	16	27!							144											
			ST	D 010	0.0	-0	195	34	l 6	275		0.0	0566	8	0064	+	144											
			OBS				195	34	-	27							144											
			ST				195	34		27		0.0	0557	5	0078	3	144											
			OBS	01			195	34		27!							144											
			ST				196	34	_	27!		0.0	0547	9	0092	2	144											
			OBS				196	34	-	27!							144											
			ST				197	347		276		0.0	00483	0	0118	3	144											
			085	020			197	347	_	276							144											
			085	0.2	33	-0	196	34:	31	27	54						144	31										

REFERENC	E				- :	MAR		STATI				ORI	GINATO	OR'S	T 8	DEPTH	MAX.		WAVE	WEA	- CLOUD			NOOC	
CTRY IO		LATITU	-	LONGITUOI	15.5				GMTI		YEAR	CRUISE	STAT		7	70	OEPTH OF	ORSI	ERVATIONS	THER	CODES			MOITATE	
CODE NO	<i>)</i> .		1/10	11/	10	10*	1°	MO C	AY H	IR.1/10		NO.	NUA	ABER	-	3110.m	S'MPL"	DIR.	HGT PER SI	CODE	TYPE AM	T		NUMBER	
31815	54 GL	75255	55	026285	W	554	56	03 0	9]	175]	970		16		0:	238	L			×ο	1 10			0019	
							WAT	ER	٧	MIND	BARC	AIR	TEMP.	°C V		NO.	S P F	CIAL							
							COLOR	TRANS.	DIR.		AA ETE			VET CO	OF	OBS.		ATIONS							
									2 /	FORCE	+-	-		7	-										
						_		Ļ	14	505	92	7 -110	-	1	(08							,		
	MESSENGE	T NO.	CAR		H (m)	т	°C	5	٠/	SIGN	IA-T	SPECIFIC V		₹ ∆ DYN.	м.	SOU		02 ml/l	PO 4-P	TOTAL-P		NO3-N	\$104-5		S C C
	HR 1/10							-		-				X 10	3	1110	····		νg • αt/1	νg - ο1/(n8 - a1/1	yg - a1/1	ug - a1/	1	C
														İ											11
			ST		-		182	338		273		00078	332	000	0	143		802							
	175	5	OBS		-		182	338		273						143		802	132		006	184	050		
			ST		-	-0		339		273		00075	04	000	В	143		797							
	175)	085			-0		339		273		00065		20.1	_	143		797	146		009	193	052		
	170		ST			-0		340		274		00065	981	001)	143		787	. 7.			2.2			
	175	,	08S			-0		341		274		00061	1.6	002	1	143		782 780	171		004	247	058		
			ST		-	~0		341	_	275	_	00058	-	003	_	143		771							
	179		OBS			-0		341		275	_	00000	, 1 1	003.	-	143		771	187		004	255	060		
	212	,	ST			-0		341		275	-	00056	. 7-1	004	7	144		764	101		004	200	000		
			ST			-0	-	341		275		00055		006		144	-	756							
	175	5	085			-0		341		275				000		144		755	198		002	275	062		
			ST			-0		341		275		00054	64	0075	5	144		756	0		-		002		
			ST		_	-0		341	9	275		00054	0.7	0081	В	144	16	757							
	175	5	OBS	01	54	-0	194	341	91	275	5					144		757	200		002	276	063		
			ST	D 02	00	-01	96	342	4	275	9	00049	86	0114	4	144	24	744							
	175	5	OBS	TO2	05	-0	196	342	48	275	9					144	25	742	210		000	288	066		
	175	5	085	T02	36	-0	196	343	03	276	4					144	31	730	210		003	292	067		

TRY IO.	SHIP	LATITU	O£	LONGITUDE	DEST	SOU.	ARE		(GM1	TIME 11 HR,1/10	YEAR	CRUISE NO.		TION MBER	-	OEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S		WAVI ERVAT	nons		WEA- THER CODE	CLC	OES			NOUC STATION NUMBER
318154	GL	7525		026285		554	56	03		232	1970		017		(0235			, ,	1	-	Хl	0				0020
						1	WA'	ER		WINO	BARG	J•	IR TEMP		VIS.	NO.	SPEC	IAL									
							COLOR	TRAN (m)	2 OIE	SPEED OR FORC	14.011			WET C	DDE	OBS. DEPTHS	OBSERV	ATIONS									
							DT	SD	14	1	90	4 -10	7	1-	7	11											
	MESSENGI TIME HR 1/10	or NO.	C ARC		(m)	т	τ	\-	*/		MA-T	SPECIFIC	VOLUM:	₹ ∆ OYN	. M.	SOL		O2 ml/l		4-P		TA L-P	NO ₂ -		NO3-N	\$1 O4~\$	
	HR 1710					+		+		_				+	-	+			+		-	-		+			+
	1	1 3	STI	D 000	0	-01	185	33	8 2	27	24	0008	3372	000	0.0	143	390		1		1	- 1		- 1			1
	232	2	085	000		-01		33		27						143											
			STI	D 001	0	-01	185	33	82	27	24	0008	3365	000	8 0	143	192										
			085	00	0	-0]	185	33	82	27	24					143	192										
			ST			-01		33		27		0007	7200	00	16	143											
	009	5	085			-0]		34		27						143											
			STI			-01		34		27		0006	6493	002	23	143											
			085	003		-01		34		27						143											
			STI	005		-01		34		27		0006	398	003	36	143											
			08S			-01		34		27 27		0006	202	009		143											
			085	00		-01		34		27		0000	0002	00	2 0	144											
			STI			-01		34		27		0006	5282	006	57	144											
			085	010		-01		34	-	27		0000		300		144											
			STI			-01		34	-	27		0005	5884	008	3 3	144											
			085	01;	25	-01	194	34	OOP		39P																
			ST	019	0	-01	196	34	17	27		0005	5555	009	7	144	15										
			085	015	0	-01	196	34	17	27	53					144	15										
			ST	020	0	-01	97	34	24	27	59	0004	983	012	23	144	24										
			085	020		-01	197	34	24	27	59					144	24										
			OBS	023	13	-01	9.8	34	28	27	62					144	70										

	, ,				1 1							·			_									_			
REFERENCE	SHIP	LATITUE	36	LONGITUDE	DEFT	MARS		STATIO	N TIN AT)	A E	YEAR		ORIGIN				PTH O	MAX.	. [WAVE		WEA	CLO				NODC
CODE NO.	CODE		1/10	1/10	조율	10*	170	MOIDA		.1/10		CRUISE NO.		TATIO			TOTAL	S'MFL"		HGT PE		CODE					NOITAT
21015	GL			0271660		554			-	-	970		0.1	,		04.	_		1		71.						0001
318154	+I OL I	74540	2	027144W	1 1	224	WAT	03 1 C	_	ND DNI		_	O1			04					į	X 1	4	Ι Ι		ŀ	0021
							COLOR			SPEED	METE) ·	DRY	WEI	VIS.	. 08	RS.		CIAL								
							CODE	im1	FIR.	FORCE	(mba		ULR	RUL		DEP	PTHS	OUSERT	Z 110143								
								1	9 5	504	88	7 -0	87		7	0.6	8										
	MESSENGE	CAST	CARE	, 1		П						COLCURA	VOLU		₹ Δ D	Τ	SDU	T		T	. 1						.]
	TIME	Y NO.	TYPE		(m)	1	℃	5 */		SIGN	A-T		ALY-XI		X 10 ³	١. ١.	VELO		O2 ml/I	PO 4		101AL-P	NO2-		03-N - 01/i	St O4-S ug - at/	
	HR 1/10	1 1	-			-		1						+	X 10	+		\rightarrow		+	-		-	+			
	1	1 1	ST	000	^	-01		1 3363	1	270	ا	000	985		0000	١.	143	90	886		- 1		1	-	- 1		1
	125		085	000		-01	-	3362	a	270		000	705	٠ '	,000		143		886	11	7		008	1	71	052	
	12.	,	STI			-01		3374		271		000	899	5 +	0009		143	_	850		1		000	-		0 3 2	
			ST			-01		3384		272			826		0018		143		819								
	125	5	OBS	002	0	-01	176	3383	5	272	5					1	143	98	819	14	9		007	21	05	055	
			ST	D 003	0	-01	176	3389		273	0	000	7833	3 (0026	1	144	00	800								
			ST	005	0	-01	176	3400		273	9	000	697	5 (0041	1	144	05	770								
	125	5	OBS	007	2	-01	178												748								
			ST			-01		3411		274			610		0057	_	144		748								
			ST			-01	_	3419		275		000	546) (072		144		747								
	125	,	085	012		-01		3423		275						-	144		746	20	7		007	21	97	065	
			ST			-01		3424		275			505		0085		144		747								
			STI			-01		3425	_	275		000	4960) (0097		144		751	20			00/	2	0.2	064	
	125)	OBS	1017		-01		3425		276		000	470	, ,	122		144		753 747	20	כ		004	21	82	064	
			STI			-01	-	3428		276			4368	_	1144	-	144		734								
	120		STI									000	4 200	, ,	1144		144		728	21	1		013	26	93	067	
	125)	OBS	T027		-01	-	3433		276		000	417	, ,	166		144		722	21	1		013	~	, ,	007	
	125		OBS	T037		-01		3437		276		000	- 1 / .	,	, 200		144		703	21	7		015	3.0	02	070	
	12:	,	STI			-01		3441		277		000	3712	,	205		144		642		,		010	,	-	0,0	
	125		085	T041		-01		3445		277		500				_	144		583	22	3		006	3	14	081	
	14.			1	-				_								- ' '		- 0 -								

REFERENCE					LE MA	RSDEN	STATION TI	ME	ORIGINATO	IR'S	DEPTH	MAX.		WAVE	WEA-	CLDUD			NOOC	}
CTRY ID.	CODE	LATITU	DE	LONGITUDE	SO SO	UARE	(GMT)	YEA	CRUISE STAT		ROTTOM	DEPTH	DESE	RVATIONS	THER	CODES		S.	TATION UMBER	
CODE NO.	1	· .	1/10	17/10	= 10°	1,	MO DAY H	R.1/10	NO. NUA	\ RER	ROTTOM	S'MPL'S	DIR.	GT PER SE	* CODE	TYPE AM	7		UMBER	
318154	GL	7454	os l	027144W	55	47	03 10 1	31 197	0 018		0410				X1	03			0022	
						WA	TER V	IND	ARO- AIR TEMP.	*C VIS	NO.	SPEC	tal							
						COLOR	TRANS. DIR.	OH I .		ET COO	DEPTHS	OBSERVA								
						CODE	1004	PORCE	mber socs a	-	-									
						DT	50 19	504 8	89 -087	7	15	L	1				,			_
	MESSENGR TIME HR 1/10	CAST HO.	CAR TYP		(m)	7 17	s */	SIGMA-	SPECIFIC VOLUME	₹ △ D DYN. M X 10 ³	4. 1 300	DCITY	D2 ml/l	PO4-P µg = 01/L	101AL-P ug = 01/1	NO2-N ug - ol/l	NO3-N Ng - 61/I	SI O4-Si µg - ot/I	рН	S C C
	17 17 1V						_											1		+
	1	1	ST	D 000	0 -	0183	3342	2692	0011452	0000	14	386					1	1	1	11
	131		OBS	_		0183	3342	2692	3011432	3030		386								
	131		ST			183	3342	2692	0011444	0011										
			085			183	3342	2692				387								
			ST	_		178	3367	2712	0009525	0022	14	395								
	006	,	OBS			0176	3372	2716			143	397								
			ST	D 003	0 -	179	3372	2716	0009132	0031	143	397								
			OBS	003	0 -1	179	3372	2716			140	397								
			085			0189	3392	2732				397								
			ST			0187	3403	2741	0006719	0047										
			OBS			0187	3403	2741			_	401								
			ST			0187	3407	2745	0006395	0064	144									
			OBS			0187	3407 3412	2745 2749	0005990	0079		409								
			5T 0BS			1189	3412	2749	00003990	0019		409								
			ST			0189 0192	3414	2750	0005812	0094		412								
			OBS			192	3414	2750	0003012	00,4	144									
			ST			195	3415	2751	0005711	0108	_									
			OBS			0195	3415	2751			144	415								
			ST			0188	3421	2756	0005237	0136	144	428								
			OBS			0188	3421	2756			144	428								
			51	0 025	0 -	0185	3429	2762	0004602	0160	144	438								
			OBS	025	0 -	0185	3429	2762			144	438								
			S 1			0186	3432	2765	0004338	0182		447								
			OBS			0186	3432	2765			_	447								
			ST			0176	3441	2772	0003625	0222		469								
			085			0176	3441	2772				469								
			085	041	0 -	0141	3443	2773			144	488								

REFEREN	SHIP			LONGITURE	= 5	MARS SOU			ION IG MT	TIME	YEAR	-	ORIGIN	ATOR	S	DEP		MAX, DEPTH	0.1	WAVE		WEA				NODC	
	10. COOE	LATITU	1/10	LONGITUDE	DELF	10°	-			HR.1/10	TEAR	CRUIS		TATIO		BOTT		OF S'MPL"	1	ERVATI		COD				NUMBER	
-					1							-	+		_			3 MPL	OIL	H GT PE	R 56	1			-		1
1 3181	1541 GL	7452	35	025471W	1 [554	45 (0.	212 WIND	1970		AIR TE			049	71		L			X 2	5 8	1		0023	
						}	COLOR		-	SPEE	O MET	0.	DRY	WE	VIS.	N C	e		CIAL								
						i	CODE	(m)	OIR	- OR	7		DATE	NUL		DEPT		OBSERV	ATIONS								
						i			20	503	89	1 -0	99		7	09	7										
	MESSENO					· ·		T							₹ △ 0	1				Τ	. 1			T	1.		Т.
	TIME HR 1/1	g NO.	TYPE		(m)	Т	°C	s	*/**	\$10	T-AM		AALY-XI		DYN. N X 10 ³		VELO		03 ml/l	PO4		TOTAL-1		NO3-N	\$1 O4-5		
	'	'	ST	000	0	-01	81	331	78	27	21	000	8680	0 '	0000	1	43	92	872				'	t .	1		
	21	2	OBS	000	0	-01	81	337	781	2.7	21					1	43	92	872	09	9		007	149	046		
			ST	0 001	0	-01	181	33	79	27	21	000	864	3	0009	1	43	94	875								
			ST			-01	80	33.			22	000	8606	6	0017	_	43		877								
	21	2	085			-01		337			22						43		879	09	2		008	155	046		
			ST			-01		338			27		805	_	0026	_	43		852								
		_	ST			-01		341			49	000	6024	4	0040	_	44		752	1.0	,		000	276	0 (2		
	21	2	OBS ST			-01		341			50	000	5718	a	0054		44		748	19	4		800	276	062		
			ST			-01		341			54		549		0068	_	44		746								
	21	2	OBS			-01		341			54	000	277.	_	0000		44		746	20	2		008	302	063		
		_	ST			-01		342			56	000	5286	5	0082		44		750		_						
	21	2	OBS	T014	9	-01	89	342	237	27	58					1	44	19	752	20	0		007	279	063		
			ST	D 015	0	-01	89	342	4	27	58	000	5052	2	0095	1	44	19	752								
			ST			-01	.87	342			61	000	4803	3	0119	_	44		746								
	21	2	085			-01		342									44		746	20	4		004	283	064		
			ST			-01		342			62	000	4672	2	0143		44		747								
	21	2	OBS			-01		343			63	000	1. 1. 7.	2	0166	_	44		748	20	L		001	294	065		
			ST			-01		343			63		4473	-	0166		44		748								
	2.1	2	ST OBS	D 040: T040:		-01		343			67	000	4118	В	0209		44		722 721	21	/.		004	312	069		
	21 21		OBS	T048		-01		343	_		69						44		725	21			005	290	071		
	21	_	003	1048	1	-0,	00	5-3	,00	21	07					Т	-	, 0	160	5 7	2		000	2 70	011		

REFERENCE SHIP		# F	MARS DEN SQUARE	STATION TH		ORIGINAT	OR'S	DEPTH	MAX. DEPTH ON	WAVE	WEA-				NODC]
CODE HO. CODE		LONGITUDE TO		MO DAY HE	YEAR		TION MBER	10	OF S'MPL'S DIR	SERVATIONS	THER	TYPE AM			UMBER	
									3 1917 2 31 0 182	HOT FEE SE		1	1			
318154 GL 74	2855 0	125406W	554 45 WAT		00 1970	O20		0506		1 1 1	X 7	0 3	1	1 1	0024	1
			COLOR		SPEED MAT	0-	WET CODE	NO. OBS.	SPECIAL							
			CODE	IMI DIR.	FORCE (mb		ULB	DEPTHS	JESER VALIONS							
			DT	SD 28	504 89	1 -143	7	15								
MESSENGE C	AST CARD			·		SPECIFIC VOLUME	₹ Δ ۵	SOUN	40	PO ₄ -P	TOTAL-P	NO2-N	NO3-N	5104-51		5
	NO. TYPE	DEPTH (m)	1 %	s ·4.	SIGMA-T	ANOMALY-X107	X 103	, AFFOC		ур = e1/1	≥g + o1/1	μg = at/l	μg = α1/I	μg - αt/l	pН	c
-			† · · · · · · · · · · · · · · · · · · ·	†	<u> </u>		†			-						-11
1 1	STD	0000	-0184	3382	2724	0008374	0000	143	91	1 1		1	'	ı	ı	1 '
100	085	0000	-0184	3382	2724			1439	91							
	STD		-0184	3382	2724	0008367	0008	1439								
	OBS	0010	-0184	3382	2724			1439								
	STD		-0184	3407	2744	0006439	0016	1439								
006	OBS	0025	-0184	3412	2749	0006047	0033	1439								
	STD OBS	0030	-0185 -0185	3412 3412	2749 2749	0006046	0022	143								
	SID		-0185	3420	2755	0005416	0033	144								
	085	0050	-0186	3420	2755	0005410	0000	144								
	STD		-0187	3422	2757	0005244	0047	144								
	OBS	0075	-0187	3422	2757			1440	07							
	STO		-0188	3423	2758	0005148	0060	144	11							
	OBS	0100	-0188	3423	2758			144								
	STD		-0188	3425	2759	0004979	0072	144								
	085	0125	-0188	3425	2759			144								
	STD		-0189	3426	2760	0004884	0085	144	_							
	085	0150	-0189	3426	2760	0004545	0100	144								
	STD OBS	0200	-0189	3430 3430	2763 2763	0004545	0108	144								
	STD		-0189 -0184	3430	2769	0003993	0130	1444								
	085	0250	-0184	3437	2769	0005775	0130	1444								
	STD		-0184	3438	2770	0003886	0149	1444								
	085	0300	-0184	3438	2770	000000	0 - 1 /	1444								
	STD		-0179	3442	2773	0003539	0187	1446								
	OBS	0400	-0179	3442	2773			1446	68							
	OBS	0467	-0168	3448	2777			1448								
	STD		-0129	3451	2779	0003006	0419	145								
	OBS	0500	-0129	3451	2779			145	10							

REFERENCE	Т							T						1 44 A W								
CTAY ID.	SHIP	LATITUDE	LO	NGITUOE		RSDEN U ARE	STATION (GM		YEAR		ATDR'S		DEPTH	MAX. DEPTH	OBS	WAVE ERVATIONS	WEA				NDDC	
CODE NO.	CODE	• 1/	10	1/10	10°	1*	MO DAY	HR.1/10			HUMBER		MOTTOR	OF S'MPL'S	DIIL	HGT PER S	0000				NUMBER	
318154	GL	742855	0.2	5406W	554	45	03 11	112	1970	02	0	-	0506					6 8	1	_	2005	
. 510154	1021	142020	, , 02	2400m	100-	WA		MIND		A 10 TE		1		_		1 1 1	X7	1018	1	1	0025	1
						COLDR	TRANS. DI	SPEED	MET		WET	COOR	ND. OBS.	OBSERV								
						CODE	(m)	FORCE	(mb	1 BULB	BULB		DEPTHS	0.3541								
							00	500	89	2 -128		7	11									
	MESSENGR		CARD							SPECIFIC VOLU	ME 8	Δο	501	ДИЦ		PO4-P						Т
	HR 1/10	U NO.	TYPE	DEPTH (n	n)	ĭ °C	s %.	SIG	T-AN	ANOMALY-X	07 D	YN. M. X 10 ³		CITY	D 2 ml/1	ug - 01/1	1/10 = Bu	NO3-N	ND3~N			- 1
	17 17 10	 			_		+				+					+	-	-	70	-		4
	I	1	ST0	0000	1 _ (174	3379	27.	22	000860	3 0	000	143	205	840							
	112		BS	0000		174	33793			000800	5 0.	000	143		840	143		009	194	056		
	112		BS	0008		181	33848						143		847	145		009	195	056		
			STD	0010		181	3389	27		000783	5 0	008	143		833			00)	1,,,	0,50		
			STD	0020		181	3406	27		000652		015	143		779							
	112	0	BS	0022	-c	181	34080	27	45				143	399	771	190		009	237	063		
			STD	0030	-0	183	3412	27	49	000605	0 0	022	144	+00	756			-				
	112	0	BS	0042	-0	186	34174	27	53				144	402	739	203		009	256	065		
			STD	0050	-0	186	3418	27		000556	9 01	033	144	403	739							
			STD	0075	-0	187	3420	27		000539	8 0	047	144	+07	739							
	112		BS	0093	-C	187	34215						144		739	209		009	264	067		
			STD	0100		187	3422	27		000522		060	144		739							
			STD	0125		187	3423	27		000513	5 01	073	144	_	741							
	112	0	BS	0144		187	34236		-				144		742	210		800	265	066		
	112	_	STD	0150 T0196		187	3424	27	_	000504	2 01	086	144		743	210			260			
	112		STD	0200		189	3427	276		000475	2 0	110	144		744	210		005	268	067		
			STD	0250		185	3431	27		000475		133	144		743 735							
	112		85	10295		182	34350			000441	0 0	1 2 2	144		728	213		003	270	060		
	112		STD	0300		182	3435	276		000411	4 0	155	144		727	213		003	2 10	068		
	112		BS	0397		179	34370			000411		- , ,	144		716	215		001	271	070		
			STD	0400	-	178	3437	276		000390	8 0	195	144		712			001		0,0		
	112		BS	T0498		127	34445		-				145		636	220		004	284	082		
			STD	0500			3445								635					, , ,		
	112	0	BS	0504			34456								634	223		006	286	082		

REFERENC	SHIP	LATITU	IDE	LONGITUDE	UFT	MAR!		STA	TION	TIME	YEAR		DRIGIN			DEPTH	DEPT	N OR	WA \		WEA-		DUD S3D(S		,	NODC	
CODE N	O. COOE		1/10	LONGITUDE	0 2	10*	1*	MO	QAY	HR.1/1		CRUIS NO.		OITATE		BOTTO	N S'MPL	1	HGT		 CODE		AMI			UMBER	
3181	54 GL	7358	75	023390W		554	33	03	11	174	1970		02	1		0274			}		х7	6	8			0026	
							WA	TER		WIND	BAR	0-	AIR TE	MP. ℃	VIS.	ND.		ECIAL									
							COLOR	TRAIN (m)	5. 01	R. O	EO MET	ER	DRY BULB	BULI	COD	DEPTH	DOSCO	VATIONS									
									0 (0 50	0 89	7 -1	06		7	07											
	MESSENG TIME HR 1/1	CAST NO.	CAS		(m)	1	℃	!	*/*		IGMA-T		C YOLU		₹ △ D DYN, M x 10 ³		LOCITY	D2 m1/		04-P - 41/I	A L→P - at/l			NO3-N vg - al/l	\$1 04-5 9g - at/		1
								1						\Box		\Box .					- 1						
			51			_	181	33			730	000	778	1 (0000		393	818				- 1		2	011		
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	012 012 012 012 012 012 012 012	er ND.	STO OBS	0000 0000 0010 0020 0030 0030 0050 0075 0081 0100 0125 0150 0285 0300 0250 0285 0300 0796 0600 0796 0800 0900 1000 11000 11000	-0179 -0180 -0181 -0182 -0182 -0188 -0179 -0188 -0179 -0181 -0183 -0181 -0165 -0165 -0122 -0107 -0031 -0027 -0005 0007 0047 0068 0068 0068 0061 0055	3363 33627 3363 33627 3363 3365 3369 3369 3369 3369 3421 34263 3421 34263 3421 34263 3421 34263 3421 34263 3421 34263 3421 34263 3421 34263 3421 34263 3421 34263 3421 34263 3427 34263 3427 3427 3427 3427 3427 3427 3427 342	2708 2708 2708 2708 2709 2710 2714 2714 2715 2756 2760 2761 2764 2766 2767 2770 2770 2770 2770 2770 2770	0009868 0009868 0009868 0009868 000987 0009348 0004788 0004788 0004540 0004025 0003873 0003450 000303450 000303450	WET BULE	7 a	SOUND SOUN	90 83992 82993 82995 8110 71224 7113 72114 72124 7113 7216 7224 7113 7224 7122	00 143 94 66 68 158 83 44 211 43 36 5 216 38 222 44 231 20 00 235 00 235 00 44 77 237		010 010 010 010 001 000 000 000 000	216 228 286 302 304 308 314 321 325	058 061 071 072 076 081 092 098		SUU
	012 012 012 012 012 012 012 012	er ND.	STO OBS STO OB	0000 0000 0010 0020 0030 0030 0050 0075 0081 0100 0125 0150 0285 0300 0285 0300 0387 0400 T0596 0600 0796 0800 0796 0800 0790 1000 11002 11000	-0179 -0180 -0181 -0182 -0180 -0179 -0179 -0179 -0180 -0181 -0183 -0181 -0174 -0169 -0165 -0122 -0107 -0031 -0027 -0005 -0007 -0068	3363 33627 3363 33627 3363 3369 3369 3369 3369 3369 3421 3428 3428 3431 3428 3431 3428 3431 3436 3437 3437 3436 3437 3436 3437 3436 3437 3436 3437 3456 3460 3460 3468 3468 3468 3468	5150 8/10 15 15 15 15 15 15 15 15 15 15 15 15 15	0009868 0009868 0009868 0009868 000987 0009848 0004788 0004788 0004786 0004786 0004786 0004786 0004786 0004786 0004786 0004788	WET BULB WET	7 a	0085. 13 13 143 143 143 143 143 143 143 143 1	90 83 990 83 992 82 993 82 995 81 995 81 103 76 111 72 113 71 120 71 220 71 220 71 230 70 45 68 67 67 68 67 67 67 68 67 67 67 68 67 67 68 67 67 68 67 67 68 67 67 68 68 67 68 68 68 68 68 68 68 68 68 68 68 68 68	0 143 9 4 6 6 158 8 8 3 2 207 8 8 216 8 8 222 2 234 9 231 2 235 8 8 223 2 237		010 010 010 010 001 000 000 000 000	216 228 286 302 304 308 314 321 325	058 061 071 072 076 081 092 098		SUC
	012 012 012 012 012 012 012 012	er ND.	STO OBS STO	0000 0000 0010 0020 0030 0030 0050 0075 0081 0100 0125 0150 0183 0200 0285 0300 0285 0300 0700 0704 0800 0700 0700 0700 0700 07	-0179 -0179 -0180 -0181 -0182 -0182 -0180 -0179 -0178 -0179 -0180 -0181 -0179 -0181 -0179 -0181 -0179 -0181 -0179 -0180 -0181 -0174 -0165 -0122 -0107 -0031 -0027 -0031 -0027 -0047 -0068 -0068 -0061 -0055 -0052 -0047 -0043 -0043 -0043	3363 33627 3363 3365 3369 3369 3369 3369 3369 3369	\$1503 91 \$1504 17 17 17 17 17 17 17 17 17 17 17 17 17	0009868 0009868 0009868 0009868 0009868 0009868 0009868 0009868 0009868 0009868 0009868 0009868 0009868	WET BULB WET	7 a	SOUND SOUN	90 83992 82995 81 95 81 95 81 16 71 220 71 33 70 45 68 67 99 69 52 26 49 55 57 54 66 46 66 46 66 47 18 47 23 47 18 47 23 47 18 47 23 47 18 47 23 47 18 47 23 47 18 47 23 47 18 47 23 47 18 47 23 47 48 45 48 45 48	00 143 94 66 158 88 83 34 211 43 36 55 216 38 222 234 99 235 08 65 238 65 238 65 238 236 236		010 010 010 010 001 000 000 000 000	216 228 286 302 304 308 314 321 325 321 325	058 061 071 072 076 081 092 098 113		SUC

															1 44 4 3				-					
REFERENCE CTRY 10.	SHIP	LATITU	OE L	ONGITUDE SOL	MARS SOU	DEN	TAT2	ION TI GMT)		YEAR	CRUISE	STATIO		OEPT TO	0.5	H OR	WAVE SERVATIONS	TH	EA-	CLOUD		S	NOOC TATION	
ODE NO.	CODE	•	1/10	ONGITUDE S	10*	1°	MO C	AY H	2.1/10		NO.	NUME	ER	BOTTO	W 2.W br	."S DIR.	HGT PER S	EA CO	OE	TYPE AMT			UMBER	
318154	GL	7338	5 0	2340 W	554					970	02			149		<u> </u>		X	2	x 3			0029	
					}	COLOR	TRANS.		SPEED	BARO- METER	AIR TE	MP. T	VI		SP	ECIAL								
					į	COOE	(m)	DIR.	FORCE	(mbs)	BULE	BUI		OEPTH	IS DESEK	VATIONS								
						DT	SD	00	500	903	-111		7	26										
	MESSENGE	CAST	CARO	DEPTH (m)	,	°€	Ι.	٠/	SIG M.		SPECIFIC VOLU	IME	₹ ∆ I	5	OUNO	O2 ml/l	PO4=P	FOTAL		NO2+N	NO3-N	51 04-51		5
	HR 1/10	or NO.	TYPE	DEFIN (m)			,	***	310 m	^	ANOMALY-X	107	x 10 ²	v. V	LOCITY	02 11171	μ g = α1/l	h8 - e		μg + at/l	νg - ο1/1	1\10 - gu	pН	Ğ
										-														
			STD	0000	-01		335		270		001014	9	0000		4389 4389									
	020)	OBS STD	000 0 0010	-01		335		270		001014	1	0010		4391									
			OBS	0010	-01		335		270		00101.	•			4391									
			STD	0020	-01		336		270		000998	0	0020		4392									
	007	,	OBS	0025	-01		336		270		000989		0030		4393 4394									
			STD OBS	0030 0030	-01		336 336		270		000989	0	0030		4394									
			OBS	0044	-01		337		272						4398									
			510	0050		174	343		276		000460	1	0049		4411									
			085	0050	-01		343		276					_	4411									
			OBS STD	0054 0075	-01		343		276 276		000474	٥	0056	_	4415									
			OBS	0075	-01		342		276	_					4415									
			STD	0100		180	343		276	-	000440	2	0068		4416									
			OBS	0100	-0]	180 182	343		276 276		000422	۵	0079	_	4416									
			STO OBS	0125 0125	-01		343		276		000422	0	007		4420									
			STD	0150	-01	-	343	8	277	0	000398	3	0089		4424									
			OBS	0150	-01		343		277			0	010		4424									
			STD OBS	0200 0200	-01	179	344		277 277	_	000373	2	0108	_	4435 4435									
			STO	2250	-01		344		277		000363	9	012		4445									
			OBS	0250		175	344		277						4445									
			STO	0300		168	344		277		000332	8	0144		4457 4457									
			OBS STD	0300 0400	-0:	122	344		277 277		000300	3	017		4496									
			085	0400		122	345		277		0001-0			1	4496									
			STD	0500		28	346		278		000270	0	0204		4558									
			OBS STO	0500 0600		028	346		278 278		000253	4	0230		4558 4591									
			0BS	0600		007	346		278		000273		5-51	-	4591									
			STD	0700	00	051	347		278		000247	0	025		4629									
			OBS	0700		051	347		278		000344	,	0200		4629									
			STD OBS	0800 0800		066 066	347		278 278		000244	0	0280		4652 4652									
			STD	0900		063	347		278		000243	5	0304		4668									
			OBS	0900		063	34	74	278						4668									
			STD	1000		056	34		278		000238	9	032		4681 4681									
			OBS STD	1000 1100		056 048	34		278 278		000233	1	035		4695									
			OBS	1100		048	34		278					1	4695									
			STD			043	34		278		000229	7	037	-	4709									
			OBS	1200 1300		043 037	347		278 279		000225	1	0398		4709 4723									
			STD OBS	1300		037	347		279		000223		0091	_	4723									
			STD	-		025	34		279	0	000222	3	042		4735									
			OBS	1400		025	34		279						4735									
			OBS	1480	0.0	022	34	73	279	0				1	4747									

TABLE II.—Continued.

REFERENCE		LONGITUGE	MARSOEN	STATION T		ORIGINA	TOR'S	DEPTH	MAX, OEPTH O	WAVE	WEA	CLOUG		N/	ooc
CODE HO. CODE	LATITUOE			(GM1)	YEAR		ATION	TO BOTTOM	OF	BSERVA TIONS	THER	CODES		AT2	ATION
100	1/10	11/10	10" 1"	MO OAY H	R.1/10	NO. NI	JMRER	0011038	S'MPL'S DIR.	HGT PER S	EA COUR	TYPE AM	1	NU	MRER
318154 GL	720825	024088W	554 24		36 1970			4078		_	X 2	6 8		0	030
			<u> </u>		/INO BAR		P. °C VIS	NO.	SPECIAL						
			COLO		SPEED MET		WET COD	OBS.	OBSERVATION	5					
				+	FORCE		-	+		-					
				12	505 92	3 -067		14							
MESSENGR TIME C	CAST CAR		1 °c	s ·/	SIGMA-T	SPECIFIC VOLUM		, , , , ,		/I PO4=P	TOTAL-P	NO2-N	NO3-N	\$104-51	5
HR_1/10	NO. 14	£			1	ANOMALY-X10	x 10 ³	. AEFO	CITY	νg = 01/1	νg - σ1/1	μg = al/l	עם - 1/10	yg - 01/1	pH C
				1											-
'	ั่รา	D 0000	-0183	3396	2736	0007292	0000	143	93 789	1	I	ı	1	1	
036	089		-0183	33961	2736			143		184		012	252	074	
	ST	D 0010	-0189	3397	2737	0007172	0007	143	92 776			-			
036			-0189	33974	2737			143	92 776	189		006	255	073	
	ST		-0188	3397	2737	0007175	0014	143	94 774						
036			-0187	33973	2737			143		190		800	252"	074	
	SŢ		-0182	3408	2745	0006360	0021	144							
0.24	ST		-0169	3440	2771	0003893	0031	144				_			
036	085		-0169	34404	2771		00.11	144		213		005	289	080	
004	ST		-0170	3441	2772	0003832	0041	144							
036	0BS		-0170 -0169	34433 3444	2774 2774	0003626	0050	144		221		002	289	082	
	ST		-0154	3448	2777	0003343	0050	144 144							
036	085		-0140	34515	2779	0003343	0039	144		226		000	295	085	
0.50	ST		-0139	3452	2780	0003045	0067	144		220		000	2,7	000	
036	085		-0072	3446P	2772P		0-0.		586	232		000	296	092	
	ST	0 0200	-0070	3458	2782	0002843	0082	144							
	ST	D 0250	-0002	3463	2783	0002797	0096	145	28 524						
036	OBS	T0298	0043	34660	2783			145	57 485	243		000	324	105	
	\$T		0044	3466	2783	0002835	0110	145	58 484						
036	085		0072	34689	2783			145		245		000	313	109	
	ST		0072	3469	2784	0002812	0138	145							
036	OBS		0069	34691	2784			146	-	245		000	317	114	
036	ST OBS		0069	3469	2784	0002804	0166	146	-	24.0			207	~	
0.36	ST		0063 0063	34666 3467	2782 2782	0002924	0195	146		248		000	307	117	
	ST		0055	3468	2784	0002924	0224	146							
036	085		0049	34685	2785	0002000	0224	146		245		006	323	120	
0.70	ST		0049	3468	2784	0002764	0251	146	-	245		000	323	120	
	ST.		0042	3468	2785	0002716	0279	146							
036	OBS		0036	34677	2785	5502,10	0217	146		248		009	325	123	
	ST	D 1000	0036	3468	2785	0002697	0306	146				00,			
	ST	D 1100	0030	3467	2785	0002696	0333	146							
	ST		0025	3467	2784	0002702	0360	147							
036	OBS	T1250	0022	34662	2784			147	07 491	245		003	326	124	

D. O.	SHIP	LATITUO	DE LOI	IGITUOE INDCT	MARSDEN SOUARE	STATION THE	YEA	C 1	RUISE 5	ATOR'S STATION NUMBER		DEPTH DEPTH TO OF OTTOM S'MPL	OBSI	WAVE ERVATIONS	WEA- THER COOF	CLOUD CODES		5.7	ODC ATION DMBER
54	GL	72082		4088W			50 197	70	02	3	4	078			X7	0 3			0031
	,				WAT		IN O B	BARO-	AIR TE	MP. °C	VIS,	NO. 18	ECIAL			,		,	
					COLOR	TRANS. OIR.		A ETER (mbs)	ORY BULS	WET BULS		OBS. DEPTHS OBSER	VATIONS						
					DT	SU 13		922	-068		7	33							
	MESSENGR TIME I	CAST NO.	C ARQ TYPE	DEPTH (m)	T 10	s */	SIGMA-	т 5	PECIFIC VOLU	ME S	△ D N, M. 10 ³	SOUNG	O2 ml/l	PO4-P µg = #1/1	TOTAL-P	NO2-N ug = ot/l	NO3-N µg - 01/l	\$1 O4-\$1 µg = 01/1	ρН
ı	716 77 19																		
		. ,	STD	0000	-0184	3400	2739	Ċ	000699	0 00	00	14393				,			
	050		OBS	0000	-0184	3400	2739		000698	2 00	07	14393							
			STD OBS	0010 0010	-0184 -0184	3400 3400	2739	(000098	5 00	101	14395							
			STD	0020	-0183	3413	2749	C	000598	1 00	13	14399							
	009		085	0025	-0182	3422	2757					14401							
			STD OBS	0030 0030	-0179	3432 3432	2765	C	000452	4 00	19	14405 14405							
			STD	0050	-0179 -0176	3446	2765 2776	C	00344	5 00	27	14412							
			OBS	0050	-0176	3446	2776					14412							
			STD	0075	-0174	3448	2778	C	000328	3 00	35	14417							
			OBS	0075 0100	-0174 -0164	3448 3452	2778 2780		00299	1 00)43	14417 14427							
			STD	0100	-0164	3452	2780		700277	. 00	, 45	14427							
			STD	0125	-0149	3454	2782	C	000287	1 00	50	14438							
			OBS	0125	-0149	3454	2782					14438							
			STD	0150	-0139 -0139	3455	2782	С	000281	5 00	57	14447							
			OBS STD	0150 0200	-0139	3455 3465	2782		000218	4 00	70	14476							
			OBS	0200	-0099	3465	2789		,00210			14476							
			STD	0250	-0014	3470	2789	C	000220	0 00	81	14524							
			OBS	0250	-0014	3470	2789					14524							
			STD 08S	0300	0041 0041	3472 3472	2788	C	000237	0 00	92	14557							
			STD	0400	0070	3474	2788	C	000242	0 0	16	14587							
			085	0400	0070	3474	2788					14587							
			STD	0500	0068	3474	2788	C	000242	1 0	40	14603							
			OBS STD	0500 060 0	0068 0063	3474 3474	2788	-	000239	8 n1	165	14603 14618							
			OBS	0600	0063	3474	2788		,002,	0 0.	. 0 2	14618							
			STD	0700	0055	3474	2789	C	000235	0 0	88	14631							
			085	0700	0055	3474	2789	_			212	14631							
			STD	0800 0800	0049 0049	3474 3474	2789 2789	C	000231	4 04	212	14645							
			STD	0900	0041	3474	2789	C	000225	9 02	234	14658							
			OBS	0900	0041	3474	2789					14658							
			STD	1000	0036	3474	2790	C	000222	6 0	257	14672							
			OBS STD	1000 1100	0036 0028	3474 3474	2790 2790		000216	5 0:	279	14672 14686							
			085	1100	0028	3474	2790		000210	_ 00	. 17	14686							
			STD	1200	0024	3474	2790	C	000213	5 03	300	14701							
			OBS	1200	0024	3474	2790			0 6	1 2 2	14701							
			STD	1300	0019	3473 3473	2790	C	000216	9 03	322	14715							
			OBS STD	1300 1400	0019 0014	3473	2790	(000212	6 03	343	14715							
			OBS	1400	0014	3473	2790					14730							
			STD	1500	0011	3473	2790	(00209	8 03	364	14745							
			OBS	1500	0011	3473	2790	0				14745							
			OBS OBS	1600 1700	0060P 0001	3473 3473	2787F 2791					14775							
			STD	1750	0000	3473	2790	C	000202	8 04	16	14783							
			OBS	1800	-0001	3472	2790					14791							
			OBS	1900	-0005	3472	2790					14806							
			STD	2000 2000	-0007 -0007	3472 3472	2790 2790	C	000198	> 04	•66	14822 14822							
			085	2100	-0011	3472	2791					14838							
			085	2200	-0013	3472	2791					14854							
			OBS	2300	-0014	3472	2791					14871							
			OBS	2400	-0016	3472	2791					14887							

TABLE II.—Continued.

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REFERENC	E SI	нір	LATITU	.	LONGITUDE	E MA	RSDEN U ARE	STA	TION TI	ME	YEAR	L	ORIGIN			DEPTH	MA		WAVE SERVATIONS	WEA	CLOUD		1	NODC	1
CODE NO	. co	DDE	*	1/10	11/10	NO SO			DAY H	R.1/10	TEAR	CR		TATION		BOTTO	M S'MP		HGT PER SI	THER CODE	TYPE AM			STATION NUMBER	
31815	4 G	L	71148	35 0	24320W	554	4 14	03	13 2	10	1970		0.2			4224		03	2 6	×1	7 4			0032	
							COLO	TER		SPEED	BAR		AIR TE	WET	VIS.	NO. 085.	12	ECIAL							
							CODE	TRANS (m)	DIR	FORCE	lmb		RULB	BULB	COD	DEPTH	S OBSER	2 NOIT AV							
	_							<u> </u>	12	\$15	91	1	-076	<u>L</u> ,	7	23		,							
	MES 1 HR	SSENGR TIME q	CAST NO.	CARD	DEPTH 6	n)	1 °C	S	٠/	SIGA	AA-T	SPI	ECIFIC VOLU	ME D	∆ D rN. M (10 ³	. SC VEI	LOCITY	0.2 mt/	PQ4-P 99 - 01/1	TOTAL-P #g = a1/1	NO2-N µg - ol/l	NO3-N µg - ot/l	51 O4-1		s c
																Π.									\sqcap
		210		ST0	0000		0168	339	98 976	27:		0	00721	1 0	000		401	812 812	188		017	257	077		
		210		085	0008		0168	33		27:							402	800	188		016	258	076		
				STO			167	339		273			00732		007		402	801							
		210		OBS	0020		0165	33	961 961	271		0	00732	2 01	015		405	803 804	188		016	264	077		
		210		ST			0155	340		274		0	00688	8 01	22		412	787	100		010	207	011		
		210		OBS	0043		145		114	274							420	757	192		011	273	079		
				STO			0147	34		275			00559)34)46		422	735 667							
		210		085	0085		0156	_	474	27		0	00307	0 0	0		427	644	220		012	287	085		
				STO			131	345		27			00324		055		442	622							
				STO			0092	34! 34!		271			00315		063 071		465	589 560							
		210		085	T0165		0038		581	278			00000	0	,,1		497	545	230		000	305	095		
				STO	0200		0007	346		278		0	00300	2 0	086	14	524	514							
		210		085	T0235 0250		0034	338	36P	271	19P	0	00294	0 0	101	1./	546	493 489	236		000	315	104		
		210		085	0292		0040		556	278		0	00274	0	101		555	479	239		000	322	105		
				STO			0044	341		278		0	00284	3 0	115		558	477							
		210		08S	T0351 0400		0062	340	576	278		٥	00281	5 0	143	_	575	466 456	239		000	312	109		
		210		085	T0426		0069	-	590	278			00201	_	- 7 5	_	591	453	237		000	315	112		
				STO			0067	340		278		0	00279	0 0	171		602	454	77.6			2.10	117		
		210		OBS ST	0562 0600		0064	346	590 59	278		0	00276	6 0	199		611	454	245		000	320	116		
				STO			0056	346		278			00273		227		630	454							
		210		OBS	T0708		0055		88	278			00071				631	454	245		007	328	118		
				STO			0048	346		278			00274		454 282		656	474 495							
		015		OBS	0905		0039	_	572	278			00214	0 0	-02	_	657	496	224		000	309	124		
		210		OBS	T0909		0021		582	278			000/0		300		650	468	245		000	309	120		
				STO	_		0020	346		278			00262		308 335		664	483 495							
		015		085	1112	(0018	346	667	278	35					14	682	496	228		000	312	125		
				STO			0013	346		278			00259		361	_	695	499							
		015		OBS) 1300 1333		0008	346	565	278		U	00255	8 0	386		709	502 503	229		000	315	126		
				STO			0006	346		278		0	00253	8 04	412		725	505			0.00				
		015		STO			0005	346		278		0	00253	4 0	+37		742	508	221		000	272	124		
		015		085 ST0	1555 1750		0004	346	564	278		٥	00245	1 0	500		751	509 513	231		000	323	126		
		015		OBS	1761			346	565							_		513	228		001	310	127		
		015		STO			8000	346		278		0	00241	5 0	60		821	522	225		000	212	125		
		015		085 ST0	2185 2500		0012	346	555 55	278		0	00231	5 0	579		903	529 544	225		000	313	125		
		015		085	T 26 2 1	-(0020		53	278						14	923	547	225		000	317	126		
		0.7.5		STO			0024	346		278		0	00221	3 0	792		987	548	230			210	122		
		015		085 085	T3001		0024		552 558	278						_	987	548 554	219		000	318	123		
		015		OBS	3565		0026	340		278							086	524	222		014	309	125		

REFERENCE	SHIP					£5	MARS SQU		STATIO	ON T	IME	Left a m			GINATO			DEPTH	MAX.		WA		WEA				NOOC]
CODE NO.	COOE	LATITU	1/10	LONG	317UDE * '1/10	NDC						YEAR	IC.	NO.	STAT			TO BOTTOM	0.0	000		ATIONS	THER		}		STATION	
1	+		1/10		1710		10*	1.	MO O	\neg			$^{+}$	_			+		3 Mrt	1	HGI	PER SE	^	TTPE JAM	1			-
318154	I GL I	7025	25	024	331W	5	54		03 1		178	197	0		25	10.	1	4279		09	4	6	X1	5 6		ŀ	0033	H
							ŀ	WA	,		WIND SPEEC		RO-	\vdash	TEMP.		vis.	NO. 085.		CIAL								
								COLOR	TRANS.	DIR.	FORC	1 111	TER	DRY BULE		ET JLB	CODE	DEPTHS	OBSERV	/A THOM S								
							Ì			12	513	-	86	-038	_ -		7	13										
	MESSENG					\neg				12	T	10	T			5	Δ 0			1	Τ.			T				\neg
	TIME HR 1/10	NO.	TYI		CEPTH	(m)	Ţ	*C	s °	·/	SIG	T-AM		NOMALY		OY	10 ³		DCITY	O2 ml/i		O4~P g = 01/1	1D1AL-1 μg = α1/1	NO2-N Ng - 01/1	NO3-N yg = 01/I	NB - 0		
																			ĺ		1							
	•		51	r D	0000		-00	89	341			46	0	0062	266	00	00	_	440	783								
	178	3	085		0000		-00		341	_		46							+40	783		08.		014	253	076		
	178	3	OBS		0000		-00	-	341			46	_						+42	785	1	86		015	264	077		
				r D	0010		-00		341			46		0062			06	144		785								
			\$1		0020		-00		341			46	0	0062	65	00	13	144		784		0.0		0.3.5	247			
	178	3	OBS		0024		-00	-	341			47	_	0059	21	00	19	14	445	783 753	1	86		015	267	077		
	3.74		0B5		0030		~00 -01		342			50 59	U	0009	21	00	19		439	680	1	93		007	281	078		
	178	3	S1		0050		-01		342			60	0	0050	0.04	00	30	14		678	1	. 7 3		007	201	010		
			S1		007		-01		343			69		0040		00		14		651								
	178	2	089	_	009		-01		344			76	·	00.0	02	0.0	- 1		+32	626	2	22		007	291	085		
	170	,	51		0100		-01		344			77	0	0033	61	00	50	144		620				00.				
			S1		012		-00		345	3	27	79		0031		00	58	14	466	577								
			S1		0150		-00		345	7	27	80	0	0030	45	00	66	14	91	541								
	178	3	089	5	T019!	5	00	14	346	31	27	82						145	527	493	2	36		000	317	103		
			S1	Q	0200	C	0.0	17	346	3	27	82	0	0028	83	00	81	145	29	491								
			\$1	O.	0250	0	0.0	42	346	5	27	82	0	0028	80	00	95	14		472								
	178	3	089		T028			52	346			83							559	464	2	35		000	321	109		
			SI		0300			52	346			83	0	0028	21	01	10	14		464	_							
	178	3	OBS		0378			154	346			83							76	462	2	39		000	329	110		
			51		0400		-	54	346			83	0	0028	26	01	38		79	462		30		000	717	112		
	178	3	OBS		1047			155	346			83	0	0020	1.1	0.1			592	461	2	39		000	312	112		
	174	,	51	_	0500 T0560		_	56 58	346			83	0	0028	11	01	00	145	509	459 455	2	41		002	324	116		
	178	3	085		0600		-	58	346			84	0	0028	112	01	94	140		455	-	- 1		002	364	110		
			51		0700			155	346			84		0028		02		146		455								
	178	2	0B5		076			153	346	_		84	•	0020	, 0 0	0 -		140		455	2	42		001	326	120		
	110	,	51		0800			51	346			84	0	0027	94	02	50	140		456		_						
			51		0900			46	346			84		0027		02	78	14	559	458								
	178	3	089		T095			143	346			84						140	668	460	2	52		008	332	123		
			51	D	1000	0	0.0	41	346	8	27	84	0	0027	37	03	05	146	574	462								
			S.	D	1100	O	00	35	346	7	27	84	0	0027	15	03	33	146	886	467								
			51	Q	1200	О	0.0	30	346	7	27	85	0	0026	92	03	50	14		473								
	178	3	OB:	5	T1234	4	0.0	28	346	71	27	85						14	707	476	2	53		000	316	120		

REFERENCI	- SHIP	, , , ,			MARSDE		STATIO					GINATO	R*S		PTH	MAX.		WAVE	WEA		T		NOOC
TRY IO.	COD		TUDE 1/10	LDNGITUDE 1/1/10	SOUAR		(G	MT)		AR	ND.	STAT			10	OF		ERVATIONS	THER	CODES		5	TATION
		(0.0			1					7.				-		S'MPL'S		HGT PER SE	<u>^</u>	TIPE AM	1		
31815	41 GL	1693	3125 l	024572W	15 18 19	94 0 WATE	3 11		IND I	70	A 10	TEMP.	% I		00		09	4 6	X2	7 18	1		0034
					co			DIR.	SPEED	BARO- METER			- v	0 12	85.	SPECIA DBSERVAT							
					C	ODE	(m)	DIR.	FORCE	(mbal	BUL	91	1F8	DE	PTHS		5.43						
								16	509	879	-044		7	1	3								
	MESSE				τ°	_	s •.	,	SIGMA-		SPECIFIC V		₹ △	0.	SOUN	ID a	1.0	PO4-P	TOTAL-P	NO2-N	NO ₁ -N	SI O 4 – Si	
	HR 1.		. TYPE	000000	' '	_		••	310	-	ANOMALI	-X107	DYN,	3	VELDC	YTI	2 ml/l	μg = 01/1	yg • p1/1	μg = al/l	ug = a1/1	μg - α1/I	pH
																							
			ST	0000	-008	35 '	3411	L	2744	. '	00064	57	000	0	1444	41 7	69	'			1	1	
	0	80	085	0000	-008	35	3410	7	2744						1444	41 7	69	172		018	253	069	
	0	80	085	0007	-008		3411		2745						1444		58	176		018	256	071	
			STI		-008		3411		2745		00064	16	000		1444		59						
	0	80	085	0019	-008		3411		2745						1444		60	194		018	258	071	
			STI		-008		3412		2745		00063		001		1444		60						
	0	80	STI 08S	0030	-008		3412 3412		2746		00063	21	001		1444		63 65	178		018	259	071	
	0	00	STI		-012	_	3427		2759		00050	44	003		1443		14	110		010	627	011	
	01	8.0	085	0074	-016		3448		2777		00050	7.7	000	-	1442		32	219		014	293	083	
			STO		-016		3448		2777		00032	98	004		1442		29					002	
			ST		-008		3454		2779		00031		004		1446		62						
			STO	0125	-001	7	3459	>	2781		00030	10	005	7	1450	00 5	11						
			STO	0150	002	5	3465	-	2783	1	00028	14	006	4	1452	24 4	76						
	0.1	8 0	085	T0150	002		3464		2783						1452		76	233		000	323	105	
			STO		002		3465		2783		00028	11	007	-	1453		70						
	01	80	085	0225	002		3465		2783						1453		69	236		000	332	105	
	0.	20	STO		003		3465		2783		00028	20	009	_	1454		69	220		000	22/	107	
	01	30	08S	0297	003		3465 3466	_	2783 2783		00028	0.0	010		1455 1455		70 70	239		000	326	107	
	0.1	3 0	085	T0382	003		3466		2783	,	00026	00	0.10	_	1457		64	243		000	323	108	
	0.0	, ,	ST		004	_	3467		2784		00027	8.7	013		1457		61	275		000	223	100	
	0.8	3.0	085	0447	005		3467		2783		00021		0-0		1458		55	244		000	330	112	
			STO		005	-	3468		2784	(00027	78	016		1459		53			500		- 1-	
			STO		005		3469		2784		00027		019	_	1461		49						
	0.8	30	085	T0608	005	8	3469	2	2785						1461	16 4	49	245		000	335	120	
			STO		005		3469		2785	(00027	18	021		1463		51						
	0.8	30	OBS	T0777	005		3468	-	2785						1464		53	248		006	338	125	
			STO		004		3469		2785		00027		024		1464		54						
			STO		004		3468		2785		00027		027		1465		56						
	0.0		STI		003		3468		2785	(00026	15	029	-	1467		59	2.0			2 2 2	100	
	0.8	3 ()	085	T1018	003	1	3468	2	2785						1467	75 4	60	248		000	322	120	

TABLE II.—Continued.

REFERENCE	T				_=	MARS		STAT	ION TIA	AE .		(DRIGIN.	ATOR*	5	0	нтчас	MAX.		WAV	E	WEA				NOOC
CTAY IO.	COOE	LATITUDE	LO	NGITUDE	MOC	sou		(GMTI		YEAR	CRUISE		TATIO		1	TO	OEPTH OF		ERVA.		THER	COOES		5	TATION
CODE NO.		1/1	0	1/10	-	10*	1,	MO C	DAY HR	.1/10		NO.		IUWB	R	-	7,107	S'MPL"	DIR	HGT	ER SE	A COO!	TYPE AM	T		OWIELK
318154	GL	710335	01	3160W	1 19	553	13	03 1	7 0	37 1	1970		02			19	920					X 4	X 9			0035
							WAI	ER	w	NO	BAR	J.	AIR TEA		VIS		NO.	SPE	CIAL							
							COLOR	TRANS.	DIR.	SPEED	(mba		ULA	M E.	COD	' la	OBS, EPTHS	OBSERV	ATIONS							
						- 1				FORCE	+	-	-		3	+	1.4									
ſ								ļ	11	526	77	5 F0	0.7	Ц.,		-	14			1					1	
	MESSENGR TIME		ARD TYPE	DEPTH 8	(m)	Т	°C	S	./	SIGN	I-AA	SPECIFIC	ALY-E	M E 07	₹ A C	۸. ا	VELO		O ₂ ml/l		4-P	TOTAL-F		NO3-N	\$104-5	
	HR 1/10		ITPE												x 10 ³	_	*****	C111		100	01/1	μ g • α 1/1	µg - al/l	μg - a1/I	yg - al/	
																-										
			STD	0000)	-0	177	339		273		000	708	3	0000)	143		794							
	037		BS	0000		-01		339		273							143		794	18			016	258	063	
	037		BS	0009		-0		339		273							143		794	19	71		016	262	063	
			STD	0010		-0:		339		273		000		_	0007		143		794							
			510	0020		~0:		339		273		000	1081	0	0014	,	144		794 794	1.0	90		016	265	063	
	037		BS	0024		-01		339	-	273	-	000	7091	0	0021		144		796	13	, 0		010	200	003	
	027		STO BS	003		-0.		339		273		000	1001	U	0021		144		798	18	3 9		015	268	064	
	037	-	STO	005		-0		340	-	273		000	697	5	0035	;	144		796		,		0			
			STO	007		-0		340		274		000			0052		144		778							
	037		BS	0094		-0		34]		274							144	18	764	20	3		013	271	065	
	0 3 1		STD	0100		-0		341	16	275	51	000	5730	0	0067	7	144	18	757							
			STD	012		-0	176	342	26	276	50	000	493	4	0081		144	21	734							
	037	, 0	BS	014	1	-0	178	343	306	276	53						144		725	2	13		011	288	064	
			STD	0150	0	-0	179	343		276		000	452	8	0092	-	144		726							
	037	0	BS	T018		-0		343		275							144		727	2 :	12		004	293	065	
			STD	0200		-0		343		276		000			0115		144		722							
			STD	0250			176	343		276		000	409	4	0136	0	144		700	2 .	1 2		003	298	074	
	037		BS	T028			174	343		276		000	2021	_	0156		144		688	۷.	12		002	290	0 / 4	
	000		STD	0300		-0		343		276		00C	392	2	0.136)	144		660	2.	14		000	293	077	
	037		BS	037		-0	154	344		277		000	352	3	0193	ì	144		649		. 7		300	273	J	
	037		STD BS	T047		-	100	344		277	_	000	112		01/2	,	145		610	2:	2.0		000	301	082	
	031		STD	050		-00		345		277		000	3261	Ω	0227	7	145		592							
	037		BS	T056			029	345		277		000		_			145	67	552	2	22		000	307	091	
	051		STD	0601			001	345		278		000	308	4	0459	7	145	86	528							
			STO	070		01	053	346	55	278	3 1	000	301	1	0289	9	146	29	483							
	037	7 0	BS	T074	8	0 (368	346	570	278	3 2						146	44	470	2:	3 2		000	317	108	
			STD	080			065	346		278		000			0319		146		471							
			STO	090			059	346		278		000	289	6	0348	3	146		473					2.2.0	1 2 5	
	037		BS	T094			056	346		278	-			_	-0-		146		474	2.	34		006	310	115	
			STD	100			053	346		278		000		_	0377		146		475							
			STD	110			046	346		278		000	2/8	4	0405)	146		477	2	32		000	315	122	
	037	7 0	BS	T119	U	0	040	346	78	278	3 4						147	05	479	۷.) 2		000	313	122	

TABLE II.—Continued.

REFERENCE	SHIP	LATITU	D.	LONGI	CT# SOLIT	MAR!	OEN	AT2	ION T	IME	YEAR		GINA'			DEPTH	MAX		WAVE ERVATIONS		EA-	CLOUD			HODC	
CODE NO.	CODE	. LATITU	1/10	LONG	1/10	10°	-	мо		R.1/10	TEAR	CRUISE NO.		MBER		TO BOTTOM	OF S'MPL	003	HGT PER S	1 00	IER DDE -	TYPE AMT		5	TATION	
	6.			0.00						-	1070						-		,,,,,,,,							
318154	GLI	7103	35 1	0131	16 W I	553	13 WA	03		247 I	1970	4.15	127	· °C		1920	L		1 1	I X	1	0 3		- 1	00361	
							COLOR	TRANS	-	SPEED OR FORCI	METE	R ORY		WET	VIS. CODE	OBS.	OBSER	ECIAL VATIONS								
							COOE	lm)	-		(mbs	1 SOF	В	anrs		OEPTHS										
						,	DT	SD	00	500	916	056		,	7	28			,							
	MESSENGR	CAST	CAR	0	DEPTH (m)	Т	°C	5	٠/	SIG	MA-T	SPECIFIC V	OLUM	ε S YO	△ D. N. M.	sou		02 ml/l	PO4-P	TOTAL		NO2-H	NO3-N	\$104-51	- 4	s
	HR 1/10	NO.	TYP									ANOMALI	-1:0		103	VELO	CITY	01	µg = α1/l	µg - 0	H/H	1/10 - gu	yg - 61/l	yg = al/Ì	pН	Ċ
																							j			П
			ST		0000		174	34		27		00066	29	0.0	00	143										
	047		OBS		0000		174	340		27		00066	7 5	0.0	0.7	143										
			ST OBS		0010		174 174	340		27		00066	22	00	07	144										
			ST		0020		174	340		27		00066	16	0.0	13	144										
	008		085		0025		174	34		27						144										
			ST		0030	_	174	340		27		00066	09	0.0	20	144										
			OBS ST		0030		174 174	340		27		00065	0.7	0.0	133	144										
			OBS		0050		174	340		27		00000	7 1	00	, , ,	144										
			ST		0075		172	340		27		00064	32	0.0	49	144										
			OBS		0075		172	341		27						144										
			ST		0100	_	176	34		27		00047	796	0.0	163	144										
			08S		0100		176 181	343		27		00042	2 1	0.0	75	144										
			085		0125		181	341		27		00042	. 51	00	110	144										
			ST		0150		180	343		27		00041	42	00	85	144										
			OBS		0150		180	34:		27						144										
			ST		0200		181	34:		27		00039	56	01	05	144										
			08S		0200		181 175	343		27		00037	192	0.1	25	144										
			OBS		0250		175	344		27		0005	/ -	V -		144										
			ST	D	0300	-0	169	344		27	73	00036	30	01	43	144										
			OBS		0300		169	344		27						144										
			ST OBS		0400		130 130	345		27		00031	20	0.1	77	144										
			ST		0500		74	345	_	27		00027	46	0.2	06	144										
			OBS		0500		74	345		27		0002		-	•	145										
			ST		0600		010	346		27	83	00028	00	02	34	145										
			OBS		0600		010	346		27		00000				145										
			ST		0700 0700		048 048	346		27		00028	123	0.2	62	146										
			ST		0800		074	34		27		00028	309	0.2	90	146										
			OBS		0800		74	34		27						146										
			ST		0900		70	34		27		00027	16	03	18	146										
			OBS		0900 1000		070 059	34		27		00026	37	0.3	45	146										
			ST OBS		1000)59	347		27.		00026	001	03	45	146										
			ST		1100		051	34		27		00025	80	03	71	146										
			085		1100	0(051	34	1	27	86					146	96									
			ST		1200)44	34		27		00026	03	03	97	147										
			OBS ST		1200)44)33	347		27		00034	20	0.4	22	147										
			085		1300)33	34		27		00024	20	04	22	147										
			ST		1400		30	34		27		00024	90	04	47	147										
			085		1400		30	34		27						147										
			ST 08S		1500		23	341		27		00024	29	04	71	147										
			085		1500 1600		023	34		27						147										
			OBS		1700		011	34		27						147										
			ST	D	1750	0 (009	34	0	27	8 8	00023	34	05	31	147	87									
			OBS		1800		007	346		27						147										
			085		1900	0.0	006	346	9	27	8 7					148	311									

TABLE II.—Continued.

REFERENCE	SHIP		1.0	NGITUOE	FE W	ARSOEN OUARE	STATION T	IME	YEAR	_	RIGINA			OEP1H TO	MAX. DEPTH	ORSI	WAVE ERVATIONS	WEA-	CLOUD	t		NOOC TATION
CODE NO.	COOE	LATITUDE 1/1	- 1	1/10	2 2). 1.	MO DAY			CRUISE NO.		ATION		MOTTOR	0.0		HGT PER SE	0000				LIMBER
-	-												\neg	1100	-		0 X	×1	0 3			0037
318154	GL	7104 S	101	2091W	55	3 12 WA		110	1970	1	028			1189	1	<u> </u>	0 1 1	1 71	1 0 13	1	1	0037
						COLOR	T	SPEE	BAR MET	O	RY	WET	VIS.	NO. OBS.	SPE							
						COOE	Imi OIR.	FORC	4-1		JLR	BULE	1	DEPTHS	OBJEKY	~ 110143						
						DT	SD 08	504	93	3 -04	8+		7	23								
	MESSENGE	CAST	CARO					Ť		SPECIFIC	VOLUM		△ 0 N. M	501	UND		PO4-P	TOTAL-P	NO ₂ -N	NO3-N	\$104-\$,
	MESSENGE TIME HR 1/10	OF HO.	TYPE	DEPTH (m)	1 %	5 %.	SIG	MA-T	ANOM	ALY-X10	, 0	YN, M K 10 ³	. AEFG	DCITY	O ₂ ml/l	μg = 01/1	μg - e1/I		μg = α1/1	yg = a1/1	pH G
	HK 1719						+															
	I	1	STD	0000) _	0180	3352	27	00	0010	0689	0.0	000	14	388		1	ı	ļ	ı	1	' '
	110		BS	0000		0180	3352		00	001	, , ,				388							
			STD	0010		0180	3352		00	0010	0681	0.0	011	14	390							
		0	BS	0010) -	0180	3352		00						390							
			STD	0020		0181	3354		01	0010	0518	0.0	021		391							
	007		BS	0025		0182	3355		02	000		0	222		392							
			STD	0030		0181	3355 3355	_	02 02	0010	1434	U	032		393 393							
			BS ST0	0030		-0181 -0180	3356		03	0010	1345	0.0	053		397							
			B5	0050		0180	3356		03	001	,,,,	•	0))		397							
			STD	0075		0179	3359		705	0010	0098	0.0	078		402							
			BS	0075		0179	3359		705					14	402							
			STD	0100) -	-0174	3361	27	707	0000	9939	0	103		409							
			BS	0100		0174	3361		07						409							
			STD	0125		0170	3369		13	0000	9319	0	127		416							
			BS	0125		-0170	3369		113	000	2077		1 = 0	_	416							
			STD	0150		-0168	3372 3372		716 716	000	9077	U	150		422 422							
			BS BS	0196		-0168 -0166	3385		726					_	432							
			STD	0200		-0171	3386		727	000	7964	0	193		431							
			BS	0200		-0171	3386		27						431							
			BS	0208	3 -	-0176	3394	2.7	734					14	431							
		0	BS	0225	5 -	-0167	3404	27	742						439							
			STD	0250		-0176	3410		747	000	6081	0	228		440							
			BS_	0250		-0176	3410		747			_	251	_	440							
			STD	0300		-0179	3424 3424		758 758	000	4971	0.	256		449 449							
			BS STD	0300		-0179 -0186	3424		766	000	4124	. 0	301		464							
			BS	0400		-0186	3434		766	000		J			464							
		0	STD	0500		-0182	3438		770	000	3773	0	341		483							
		0	BS	0500		-0182	3438		770						483							
			STD	0600) -	-0176	3441	27	772	000	3511	. 0	377		503							
		0	BS	0600		-0176	3441		772						503							
			STD	0700		-0168	3446		776	000	3112	0	410		524							
		0	BS	0700		-0168	3446		776	000	2710		420		524 566							
		^	STD	080		-0117 -0117	3454 3454		781 781	000	2719	, 0	439		566							
		U	BS STD	0900		-0029	3462		783	000	2642	0	466		624							
		0	BS	0900		-0029	3462		783	000					624							
		·	STD	1000		0029	3469		786	000	2544	0	492		669							
		0	BS	1000		0029	3469		786					14	669							
		0	BS	106	6	0052	3470	2	786					14	690							

							T	ABLE	Η	.—Co	ntinu	iec	ł.									
REFERENCE	SHIP	LATITUDI		NGITUDE	AM S	UARE .	STATION TI	ME YEA		DRIGIN		_	DEPTH TO	MAX.	Day	WAVE	WEA-	CLDUD			NODC	
CODE ND.	CDDE		/10	1/10	10*	110	MD DAY N	R.1/10			TATION UMBER	- 1	MOTTON	S'MPL"		HGT PER SE	2000	TYPE AM			NUMBER	
318154	GL	71100	5 01	12227W	5.53	12	03 17 1	62 19	7.0	029	3)465		07	0 2	Х2	5 7			0038	
. 510154	0.	, 1100	0,0.	* F C C · W	())-	WA		(IND	LARD.	A 12 75 4			ND.			10 12 1	1 ^2	1 2 1 1	1	- 1	00201	
						COLOR	TRANS. DIR.	SPEEQ /	AETER	DAY	WET	VIL	0.00		CIAL							
						CDDE		70.00	(mba) 937	- i 		7	09									
	MESSENGE TIME	OI ND.	C ARD TYPE	DEPTH Im	,	T °C	s •/	SIGMA-	T	SPECIFIC VOLU	ME & Z		SDU		D2 ml/l	PO4=P yg = at/1	TOTA L = P +g = 01/I	NO2-N µg - al/l	ND3-N µg = a1/1	SI D4-5		Š
	HR 1/10	 -		+					\dashv			10	+					-				H
1		1	STD	0000	-0	181	3349	2697	- 1	0010948	3 000	0.0	143	87	808		- 1	l			1	11
	162	(DBS	0000		181	33486	2697					143		808	167		019	236	052		
			STD	0010	-0	180	3350	2698		0010865	00	11	143		812							
	162	. (DBS	0014		180	33500	2698					143		813	169		016	240	052		
	2 / 0		STD	0020		181	3350	2698		0010796	00;	2 Z	143		813	1/2		030	2/1			
	162	,	OBS STD	0027		181	33509 3352	2699 2700		0010669	00:	3.2	143		813	167		018	241	052		
	162		DBS	0048		171	33591	2705		001000		_	144		811	175		015	248	054		
			STD	0050		171	3359	2705		0010113	005	53	144		810				_			
	162	(OBS	0070		167	33612	2707					144		802	175		017	237	054		
			STD	0075		167	3362	2708		0009898	_		144	-	802							
	162		STD	0100		166	3369 33729	2713		0009345	010	02	144		799 797	179		016	248	0 F 7		
	102	,	STD	0115		167	3377	2710		0008715	01;	2 5	144		790	179		016	248	057		
			STD	0150		168	3385	2726		0008083			144		778							
			STD	0200		170	3401	2739		0006820			144		759							
	162	(OBS	T0205	-0	170	34022	2740					144	34	757	204		011	275	063		
			STD	0250		179	3418	2753		0005461	. 02	14	144		749							
	162	(OBS	T0294		184	34263	2760		0001701	000		144		741	211		015	292	066		
	162		STD DBS	0300 T0351		184 186	3427 34282	2761		0004726	023	39	144		740	211		009	286	068		
	102	,	703	10331	-0	100	34202	2102					144	,,	1 72	211		009	200	000		
REFERENCE CTRY ID.	SHIP	LATITUD	- 1		S S S S S	RSDEN U ARE	STATION TO	YE	AR .		TATION	-	DEPTH TO BDTTOM	MAX. DEPTH OF	08	WAVE SERVATIONS	6005	CLDUD)	,	NDDC STATION NUMBER	
			1/10	1/10	10*	1.	MD DAY H				UMBER	\rightarrow		S'MPL'	1	HGT PER SE	A	TYPE AM	1			
318154	GL	70575	5 0	11216W	55	01 WA		27 19	70	03		(0320		36	0 x	X2	0 3		1	0039	
						COLOR	1	SPEED	BARD			VIS.	ND. DBS.		CIAL							
						CDDE	TRANS DIR.		(mbal		BULB	CODE	DBS. DEPTHS	DRZER	ATIONS							
						DT	SD 11	509	955	-044		7	15									
	MESSENGE TIME HR 1/10	CAST of ND.	CARD TYPE	DEPTH G	11	7 10	s */.	SIGMA-	-1	SPECIFIC VOLU	DYN	∆ D. 1. M. 10 ³	SOU		D2 m1/	PO4-P µg • d1/1	TOTAL=P ug + al/l	NO2-N ug - al/l	NO ₃ -N μg - αt/l	SI D4-		c C
	0.71		STD	0000		0182	3354	2701		001053	1 00	00	143									
	227		OBS STD	0000		0182 0182	3354 3354	2701 2701		001052	4 00	11	143									
			0BS	0010		0182	3354	2701		001002	. 00	11	143									
			STD	0020		182	3355	2702		001046	2 00	21	143									
	009	5	OBS	0025		182	3355	2702					143									
			STD	0030		182	3355	2702		001043	2 00	31	143									

OBS

STD

STD

STD

STD

STD

STD

STD

-0182

-0181

-0181

-0177

-0177

-0162

-0162

-0167

-0167

-0174

-0172

-0172

-0145

-0162

-0162

-0182

-0184

-0184

-0186

0010342 0052

0009873 0078

0009280 0101

0008867 0124

0008147 0145

0006767 0183

0004910 0212

REFERENCE	SHIP			-5	MARSOEN	STATION TH		ORIGINATO	R*S	DEPTH	MAX. DEPTH		WAVE	WEA-	CLOUD			NOOC
CTRY ID.	CODE	LATITUI		NGITUDE BO	SOUARE	(GMT)	YEAR	CRUISE STAT		BOTTOM	OF		ERVATIONS	THER	CODES			TATION
CODE NO.	1		1/10	1/10	10, 1,	MO OAY NE					S'MPL'S		HGT PER SE	A	TYPE AM	-		
318154	GL	70210	05 00	8550W			67 1970	031		0503		28	2 7	X1	5 5	1	1	0040
					WA	1	SPEED BAR		VIS	NO.		CIAL						
					COLOR	TRANS. DIR.	OR (mbi		JET COD	DEPTHS	OBSERV	SHORE						
						12	504 97	2 -053	7	10								
				1		112	1		1 - 0 -	17								
	MESSENGI	NO.	CARD	DEPTN (m)	τ ℃	s */	SIGMA-T	ANDMALY-X107	₹ △ E DYN. A x 10 ³	A. Luri	UND	0 2 m1/l	PO4-P pg = o1/I	10TAL-P	NQ2-N ug - at/1	NO3~N yg - al/l	\$1 O4-\$1 yg + a1/1	
	HR 1/10			-			-		X 10-	-			-	•		71		-
		1 1			0170	2245	2710	0009697	0000	٠,,,	394	804						
	1.1	,	STD	0000	-0173 -0173	3365 33651	2710	0009697	0000		394	804	166		013	237	053	
	167	f	STD	0010	-0173	3365	2710	0009685	0010		396	801	100		017	201	000	
			STD	0020	-0172	3365	2710	0009670	0019		397	798						
			STD	0030	-0171	3365	2710	0009658	0029		400	797						
	167	7	OBS	0049	-0170	33656	2711			144	403	795	169		012	236	053	
			STD	0050	-0170	3366	2711	0009600	0048	144	403	795						
			SID	0075	-0169	3366	2711	0009586	0072	144	408	798						
	16	7	OBS	0089	-0168	33672	2712				411	799	171		012	237	054	
			STD	0100	-0169	3368	2712	0009416	0096		413	799				0.05		
	16	7	OBS	0110	-0169	33688	2713				414	799	169		011	235	053	
			STD	0125	-0159	3373	2716	0009043	0119		422	797	174		010	242	054	
	16	7	OBS	0131	-0156	33756	2718	0000103	0141	_	425 429	795 784	174		012	242	094	
			STD	0150 0174	-0156 -0159	3384 33955	2725 2735	0008193	0141		433	770	192		012	264	059	
	16	ľ	OBS STD	0200	-0170	3410	2747	0006131	0176		434	759	1/2		012	204	027	
	16	7	085	T0217	-0176	34167	2752	0000131	0-10		435	745	207		012	298	065	
	10	'	STO	0250	-0182	3422	2757	0005146	0205	_	439	665						
	16	7	085	T0293	-0184	34269	2761			14	446	622	213		009	302	066	
			STD	0300	-0182	3428	2761	0004656	0229	14	448	634						
	16	7	OBS	T 0 3 7 0	-0170	34331	2765				466	717	219		003	307	070	
			STD	0400	-0167	3434	2766	0004191	0273		473	713						
	16	7	OBS	T0471	-0167	34354	2767			14	485	705	215		003	308	072	

TABLE II.—Continued.

NCE ID.	SHIP	LATITUDE	LC	NGITUDE	S W	ARSDEN QUARE	TATE	ION TIA		AR ,	CRUISE	RIGINA	TDR'S ATION		DEPTH TO	MAX	. 1	WAVE	NS	WEA-	CLOUD			NDDC TATION
ND.	CDDE	* 1/	10	1/10	Z 10	D* 10-1	MO	DAY HR	1/10	ľ	NO.		JMBER	80	MOTTO	S'MPL		HGT PER	- 1	CODE	TYPE AM		N 3	UMBER
154	GL	702085	0.0	7298w	5.5					70		032			740	1	-	1 - 1 - 1	**	V 2	1	-		00/1
1041	95 [102003	5 100	/ (2 9 0 W	100	WA			IND I			IR TEM					00	0 X	ı	X 2	0 3	1		0041
						COLOR	TRANS	OIR.	SPEED	BARO- METER		RY		VIS.	NO. 085.		CIAL							
						CDDE	lm1	CIR.	FORCE	(mba)			BULB	م	IEPTHS	CR25K	ZHOITAV							
						DT	SD	00	500	940	-0:	0	1	7	27									
ſ	MESSENGR	CASS	CARD	1	Т		1			1			. 5/	\				T						
	TIME	CAST NO.	TYPE	DEPTH (m)	'	7 70	2	٠/	SIGMA	-T	ANOM	VOLUM ALY-XIO7	מאלם ב	1. M.		DOLLA	D 2 ml/l	PD4=1		1₹A L—P g = at/l	NO2-N vg - al/l	NO3-N NG - al/I	\$1 D4-\$1 #8 - a1/1	рН
ŀ	HR 1/10			+			+			-			- 1	10-	-			70	-		24 - 201	yg - ui/1	pg - 0//	
-			STD	0000	-	0179	335	0	l 2705		0010	1152	001	0.0	143	ا م								}
	015		BS	0000		0179	335		2705		0010	1100	001	00	14:									
	015		STD	0010		0179	335		2705		0010	146	00	10	143									
		C	BS	0010		0179	335		2705		0010	,140	00	10	143									
			STD	0020		0174	336		2713		0009	9458	00	20	141									
	007	C	B5	0025		0173	337		2714						143									
			STD	0030		0172	337		2714		0009	302	00.	29	144									
		C	BS	0030	-	0172	337	0	2714						144	400								
			STD	0050	-	0167	338	0	2722		0008	3533	00.	47	144	407								
		С	B5	0050		0167	338		2722						144									
		_	STD	0075		0154	339	-	2731		0007	7708	00	67	144									
		С	BS	0075		0154	339		2731						144									
			STD	0100		0149	339		2733		0007	7478	00	86	144									
		U	BS .	0100		0149	339		2733			700	0.1		144									
		0	STO BS	0125		0140	340		2741		0006	126	01)4	144									
			STD	0125		0140	340		2741 2743		0006	499	01	2.1	144									
		0	BS	0150		0135	340		2743		0000	,477	01.	~ 1	144	_								
			BS	0171		0132	341		2747						144									
			BS	0191		0172	341		2754						144									
		, and the second	STD	0200		0174	342		2756		0005	201	01	5.0	144									
		C	BS	0200	_	0174	342	2	2756						144									
			STD	0250	_	0180	343	1	2764	1	0004	464	01	74	144									
		0	BS	0250	-	0180	343	1	2764						144	441								
			STD	0300	-	0178	343		2766		0004	211	01	96	144	451								
		0	BS	0300	_	0178	343		2766						144	+51								
			STO	0400		0169	343		2770	1	0003	8803	02:	36	144	472								
			BS.	0400		0169	343		2770						144									
			BS	0435		0128	344	-	2776						144	499								
			BS	0443		0132	344		2773															
			BS	0451		0111	345		2779						145									
		U	BS	0490 0500		0107	345 345		2783 2781				0.7		145									
		0	BS	0500		0074	345		2781	,	0002	2021	02	59	145									
			BS	0526		0068	345		2781						145									
			BS	0546		0034	346		2783						145									
			BS	0569		0030	346		2784						145									
			BS	0577		0024	346		2786						145									
			STD	0600		0028	346		2785		0002	676	02	7	146									
			BS	0600		0028	346		2785						146									
			STD	0700		0051	346	9	2785	(0002	695	03	23	146									
		0	BS	0700		0051	346		2785						146									
		0	BS.	0722		0051	347	0	2786						146									















532-AA

Woods Hole Oceanagraphic Institution

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